



WETLAND AND WATERS DELINEATION REPORT

I-95 ETL NORTHBOUND EXTENSION

COWENTON AVENUE TO NEW FORGE ROAD

Baltimore County, Maryland

JMT Project Number 13-0770-054

Submitted to:
Maryland Transportation Authority

July 2020

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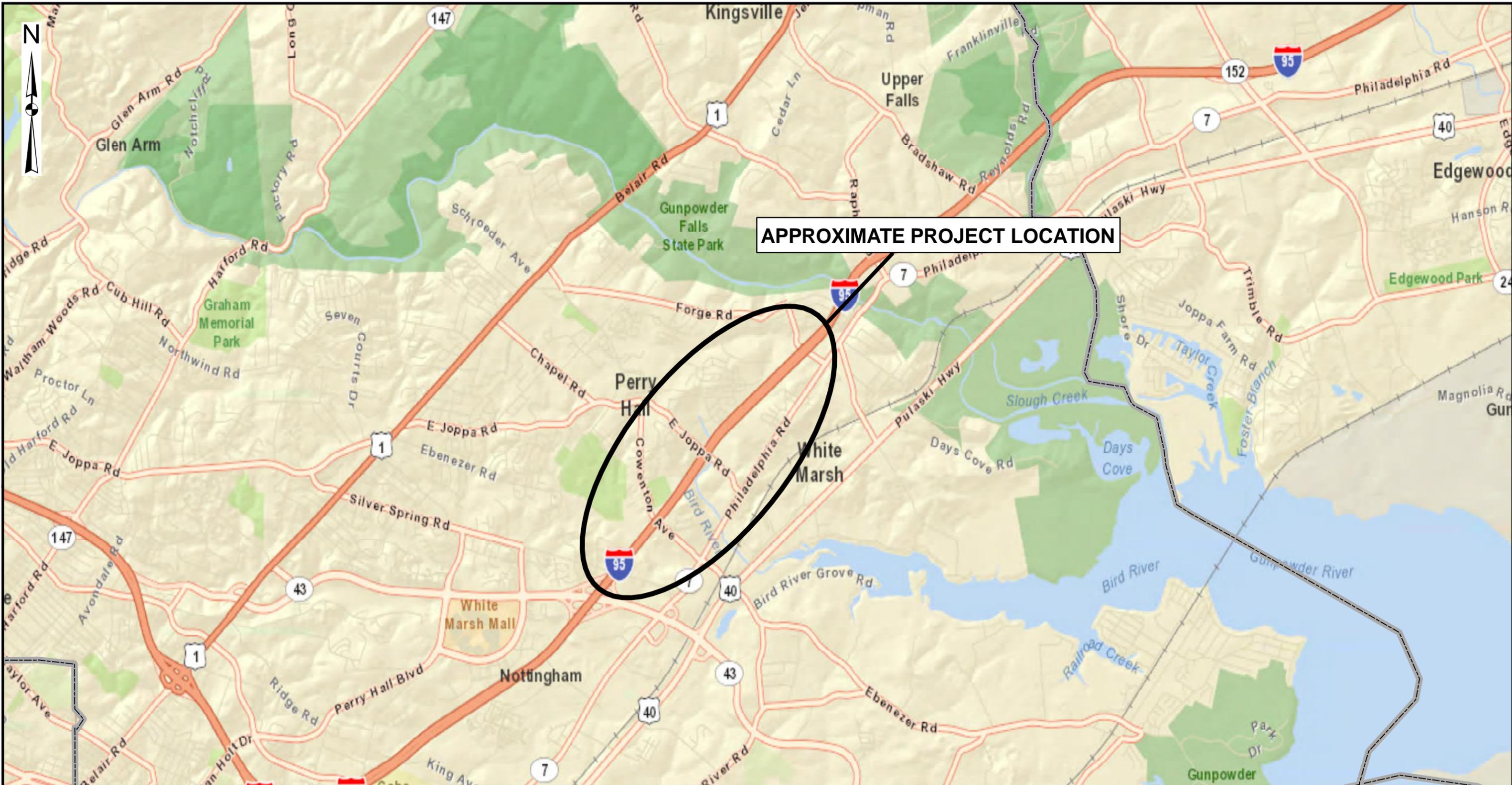
1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Maryland Transportation Authority (MDTA) owns, operates, and maintains a 50-mile portion of I-95 in Maryland, beginning north of Baltimore City and extending to the Delaware state line. To address safety and congestion concerns, MDTA proposes to construct the I-95 Express Toll Lanes (ETL) Northbound Extension Project along I-95 from north of MD 43 in Baltimore County to MD 24 in Harford County (**Figure 1**) in two separate phases that have ‘independent utility.’ The purpose of the proposed improvements is to address capacity and safety needs within the project limits and thereby improve access, mobility and safety for local, regional, and inter-regional traffic, including passenger, freight, and transit vehicles. The project includes a northbound two lane ETL extension from MD 43 to south of MD 152, a northbound auxiliary lane from MD 152 to MD 24/MD 924, overpass reconstruction, and two noise walls along northbound I-95. The proposed improvements will be constructed in multiple phases while safely maintaining traffic. Minor impacts to environmental resources are anticipated and will be mitigated in coordination with federal/state regulations.

The stretch of I-95 that is the focus of this report extends from the Cowenton Avenue overpass to the New Forge Road overpass, which is part of Phase I of the I-95 ETL Northbound Extension Project. This area was previously delineated during planning of the I-95 ETL Section 100 project. A Jurisdictional Determination, dated July 30, 2004, was completed by the U.S. Army Corps of Engineers (USACE) within the area, and unavoidable impacts to wetlands and waterways under the full build-out of the I-95 ETL Section 100 project were authorized by USACE under Department of the Army Permit No. CENAB-OP-RMN (MD MTA/I-95, SECTION 100/RD XINGS) 06-6011-18 and the Maryland Department of the Environment (MDE) under Nontidal Wetlands and Waterways Permit No. 05-NT-0357/200660011. Construction of the I-95 ETL Section 100 project in this area has been ongoing since these permits were issued.

Under contract with MDTA, Johnson, Mirmiran, & Thompson (JMT) reviewed published information and conducted field investigations, along with Wallace Montgomery, of the Study Area to confirm and update previously delineated resources due to the amount of time that has passed since the previous delineation and Jurisdictional Determination (dated 2004). JMT and Wallace Montgomery were also tasked to delineate any new wetlands and waterways within the MDTA right of way. This report describes the new, updated, and confirmed wetlands and waters delineated. A preliminary Jurisdictional Determination of the revised delineation was conducted by USACE and MDE on May 29, 2020; this report has been revised to reflect the resulting determinations.



APPROXIMATE PROJECT LOCATION

0 2,000 4,000 8,000 Feet

1" = 4,000'

SOURCE: ESRI

**FIGURE 1:
VICINITY MAP**

**I-95 ETL NORTHBOUND EXTENSION
COWENTON AVE TO NEW FORGE RD**

BALTIMORE COUNTY, MD

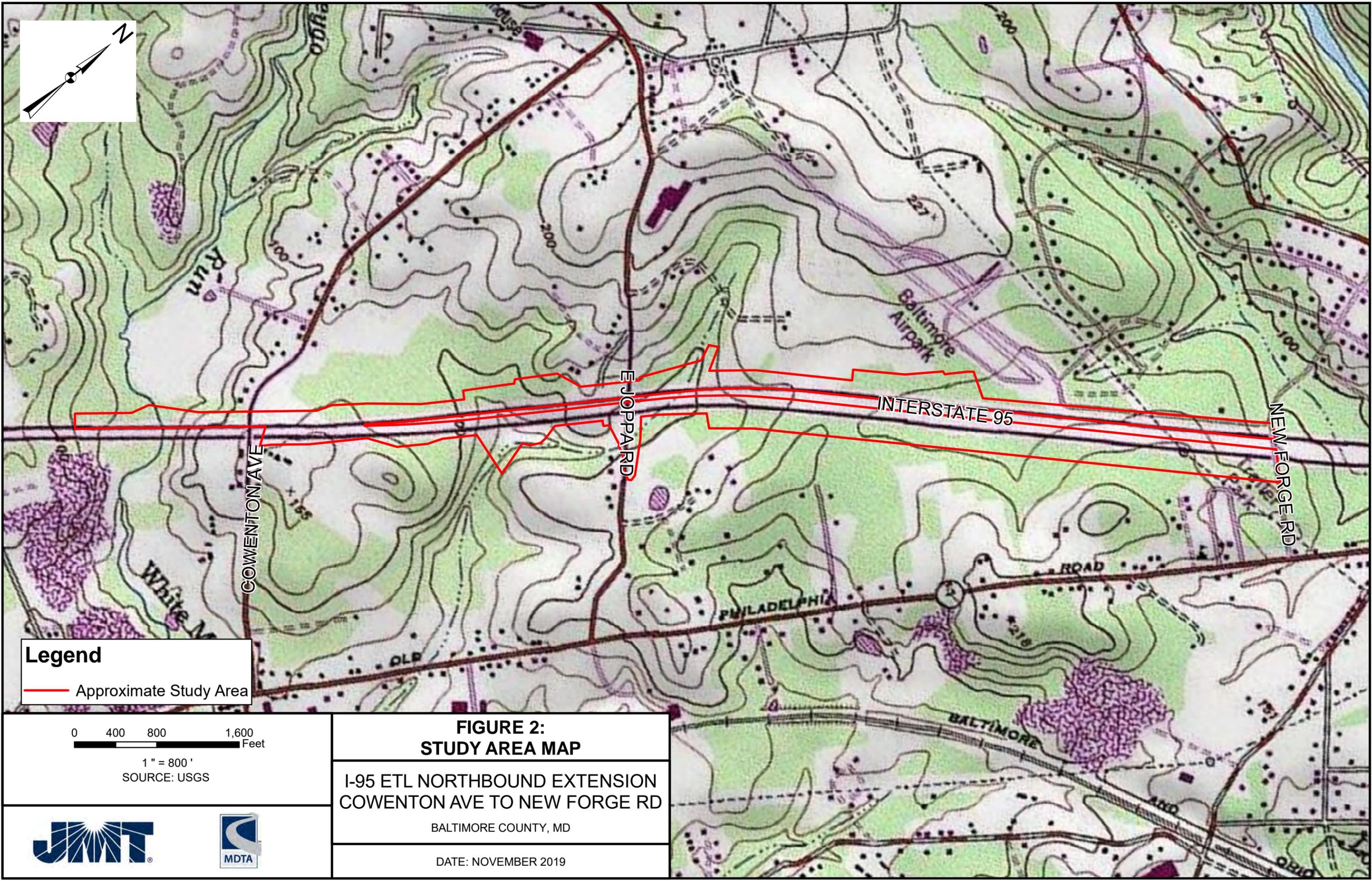
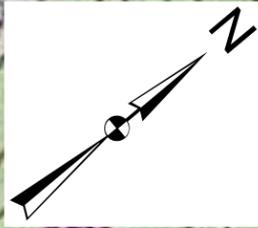
DATE: NOVEMBER 2019



1.2 STUDY AREA DESCRIPTION

The Study Area is located along the northbound and southbound sides of I-95, within the MDTA right of way, in Baltimore County (**Figure 2**). The Study Area extends from the Cowenton Avenue overpass to the New Forge Road overpass and is mostly forested, exempting areas of existing roadways and shoulders. The southern portion of the Study Area lies within the Northern Atlantic Slope Diversified Farming Region of the Northern Coastal Plain Land Resource Area (MLRA 148). The northern portion of the Study Area lies within the Northern Atlantic Slope Diversified Farming Region of the Northern Piedmont (MLRA 149A). The Study Area is divided between two Maryland Department of Environment (MDE) 8-Digit Watersheds, Bird River (02130803) and Lower Gunpowder Falls (02130802).

Geologically, the Study Area is in the Piedmont Plateau Physiographical Province and falls within the Baltimore Complex and Patuxent, Arundel Clay, and Patapsco formations.



Legend
 — Approximate Study Area

0 400 800 1,600 Feet

1" = 800'
 SOURCE: USGS

**FIGURE 2:
 STUDY AREA MAP**
 I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVE TO NEW FORGE RD
 BALTIMORE COUNTY, MD
 DATE: NOVEMBER 2019



2.0 METHODOLOGY

2.1 DESKTOP INVESTIGATION

Pre-Field Desktop Analysis

A review of published information was conducted to identify known wetlands and waterways within the Study Area (**Table 2.1**).

Table 2.1 References for Identification of Jurisdictional Wetlands and Waterways

Document	Date	Reference	Related Report Figure
<i>USGS 7.5 X 7.5 Minute Quadrangle for White Marsh, MD</i>	2016	ngmdb.com (topoView)	Figure 2
<i>Digital National Wetlands Inventory</i>	1992	USFWS National Wetlands Inventory (NWI) via MD iMAP	Figure 3
<i>MD Department of Natural Resources</i>	1995	Maryland Wetlands – Wetlands, Polygon (Department of Natural Resources)	Figure 3
<i>MD Hydrology/Waterbodies</i>	Various	MD iMAP (GIS and Data Portal)	Figure 3
<i>FEMA Digital Flood Insurance Rate Map for Baltimore County</i>	2008, 2014	Federal Emergency Management Agency (FEMA)	Figure 4
<i>Soil Survey for Baltimore County</i>	2016	United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) Web Soil Survey	Figure 5
<i>Section 100: I-95, I-895(N) Split to North of MD 43, Wetland Delineation Report</i>	2003	Maryland Transportation Authority	N/A

2.2 FIELD INVESTIGATION

Field investigations were conducted in August and December 2017 to confirm the published information and field delineate wetlands and waterways within the Study Area. Follow-up field investigations were conducted in August 2019 to collect additional information for delineated waters. All technical fieldwork was performed according to the *U.S. Army Corps of Engineers Wetland Delineation Manual, Y-87-1* (Environmental Laboratory, 1987). Both the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)* (USACE, 2010) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* (USACE, 2012) were used during the field investigations. The Corps manual outlines the three-parameter approach for delineating wetlands. All three parameters (hydrophytic vegetation, hydric soils, and wetland hydrology) must be confirmed to classify an area as a wetland, unless the site

is atypical (disturbed) or a problem area. Each wetland and waterway were classified into systems according to *Classification of Wetlands and Deep Water Habitats of the United States* (Cowardin, et al., 1979). Plant indicator status was determined using the *United States Department of Agriculture Natural Resources Conservation Service Plants Database* (USDA-NRCS, 2017). Soil samples were collected at each wetland and upland sample point, and soil colors were described in the field using a *Munsell Soil Color Charts* manual (Munsell® Color, 2000). An auger was used to delineate between hydric and non-hydric soils.

Wetlands and waterways within the Study Area were delineated by a team of environmental scientists from JMT and Wallace Montgomery. JMT delineated the northbound section of I-95, while Wallace Montgomery delineated the southbound section of I-95. Wetland and upland sample plots, along with wetland boundaries, were flagged with pink survey tape and each flag was labeled. Boundary point positions were surveyed using a global positioning system (GPS) capable of sub-meter accuracy and placed onto aerial mapping.

Wetland (hydrophytic) vegetation was determined using the USACE *National Wetland Plant List* (NWPL) (Lichvar, et al. 2016). This document assigns a wetland indicator status to plants based on how frequently they occur in wetlands. The NWPL wetland indicator status and definitions are listed in **Table 2.2**.

Table 2.2 Wetland Plant Indicator Definitions

Wetland Indicator Status	Definition
Obligate Wetland (OBL)	Almost always occur in wetlands
Facultative Wetland (FACW)	Usually occur in wetlands, but may occur in non-wetlands
Facultative (FAC)	Occur in wetlands or non-wetlands
Facultative Upland (FACU)	Usually occur in non-wetlands, but may occur in wetlands
Obligate Upland (UPL)	Almost never occur in wetlands

Source: Lichvar et al. 2016. *The National Wetland Plant List*.

An auger was used to delineate between hydric and non-hydric soils.

3.0 FINDINGS

3.1 PUBLISHED INFORMATION

JMT reviewed published information to identify known site conditions, such as the presence of wetlands, waterways, floodplains and critical areas within the Study Area.

The *White Marsh, MD Topographic 7.5 x 7.5 Minute Quadrangle* (USGS, 2016) depicts two mapped waterways in the Study Area: Honeygo Run and Lightwoods Creek (**Figure 2**).

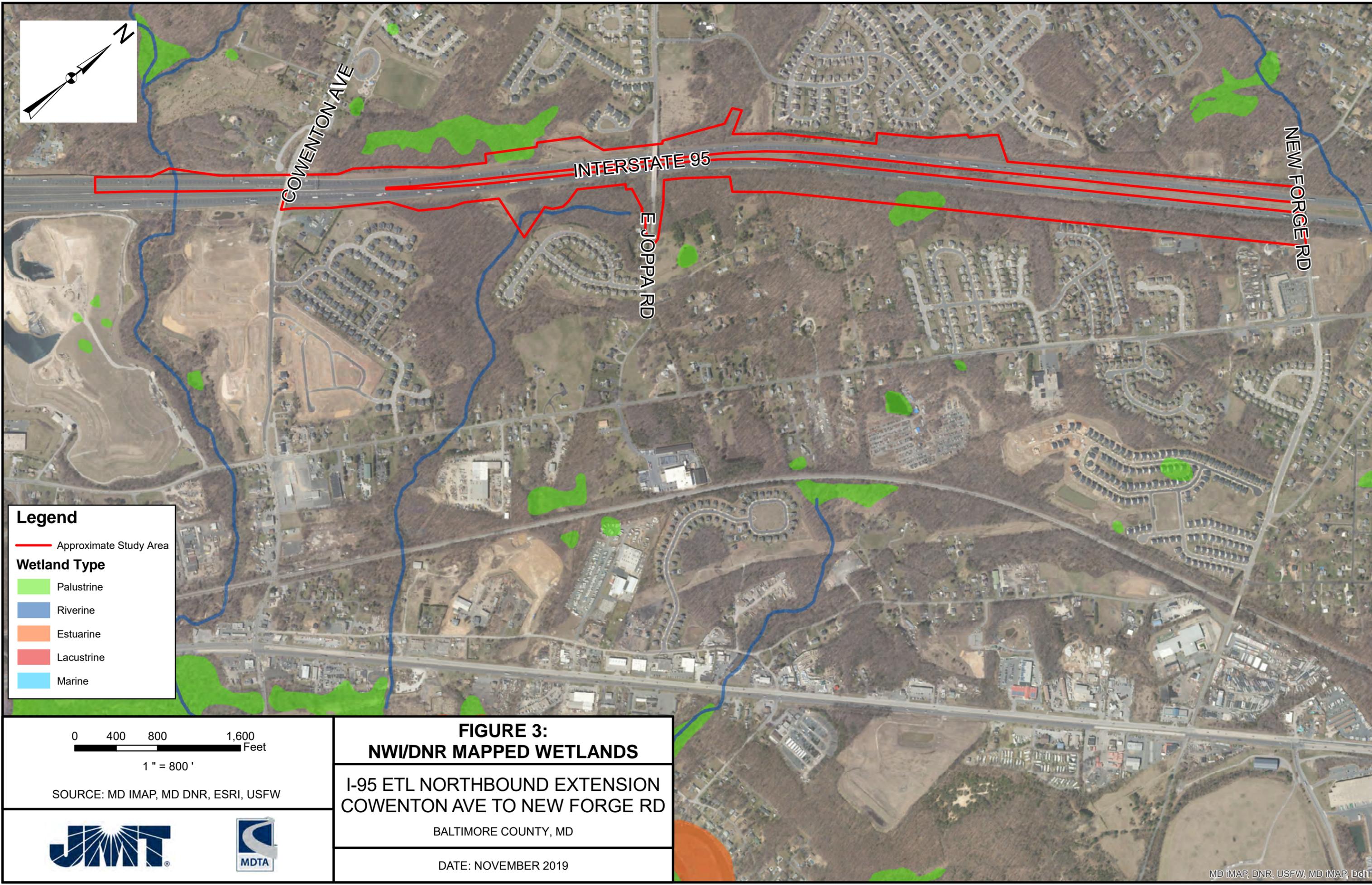
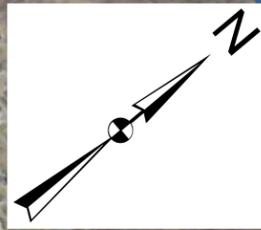
Maryland Wetlands – Wetlands, Polygon, (MD DNR, 2019) depicts two mapped palustrine wetlands and two riverine system within the Study Area.

The Digital MDNR NWI Map of the *White Marsh, MD Quadrangle*, (USFWS, 1992) depicts two mapped waterways, Honeygo Run and Lightwoods Creek, and two mapped palustrine wetlands within the Study Area (**Figure 3**).

The FEMA Flood Insurance Rate Map (FIRM) for Baltimore County, Maryland (FEMA, 2008 and 2014) depicts two portions of the Study Area within the 100-Year Floodplain, one of which is within the Floodway (Firm Panels #2400100290F & #2400100295G) (**Figure 4**).

The Web Soil Survey of Baltimore County, Maryland, (USDA-NRCS, 2016) was referenced for all the soil survey data collected for this memorandum. The soil map indicates that 30 soil mapping units occur within the Study Area. The soils are shown on **Figure 5**.

The wetland delineation report previously completed for the I-95 ETL Section 100 project (MDTA, 2003) documented 16 jurisdictional wetlands and 29 waterways within the current Study Area.

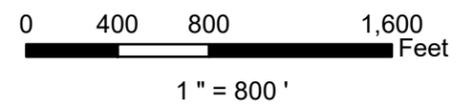


Legend

— Approximate Study Area

Wetland Type

- Palustrine
- Riverine
- Estuarine
- Lacustrine
- Marine



SOURCE: MD IMAP, MD DNR, ESRI, USFW

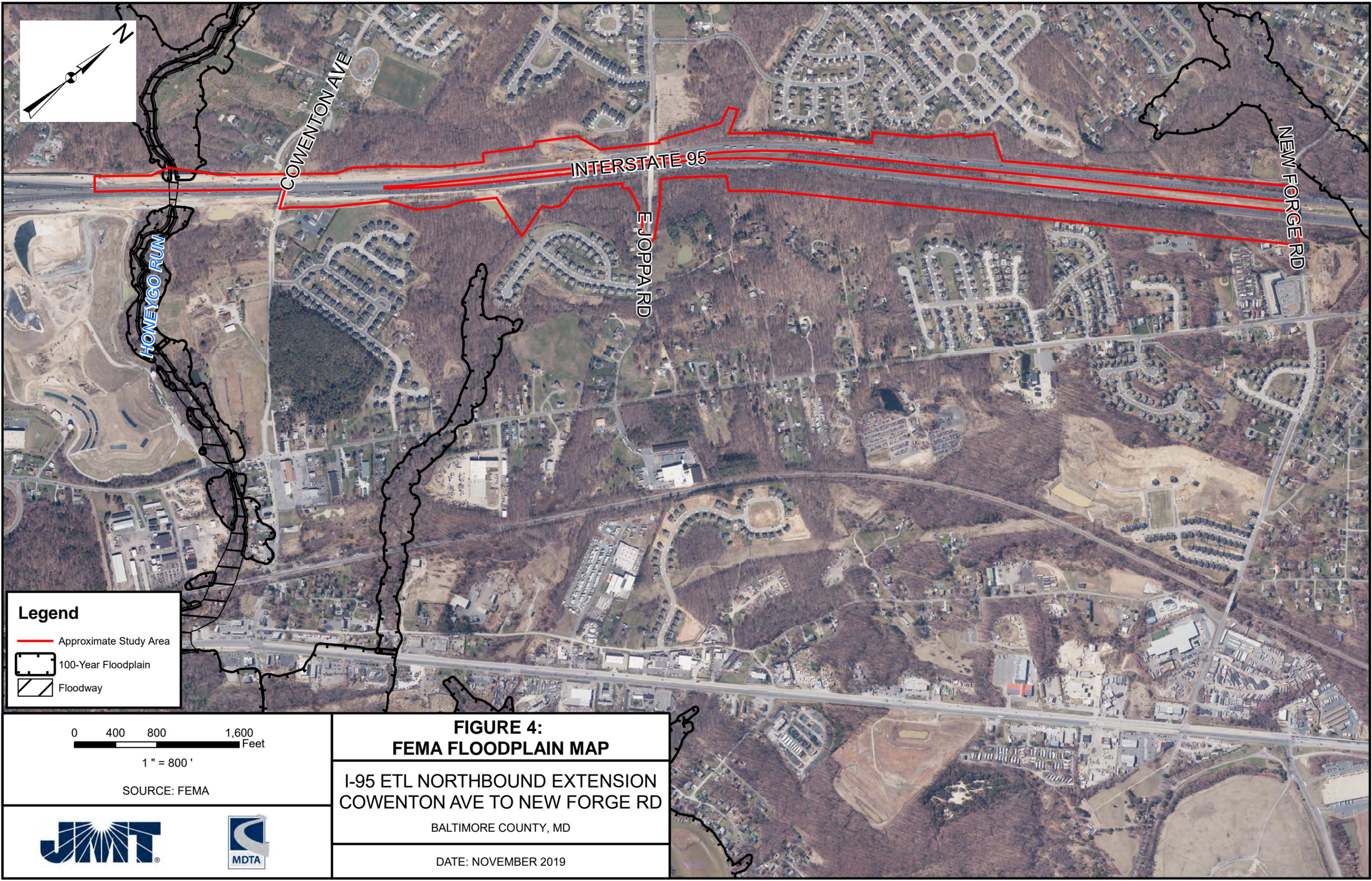
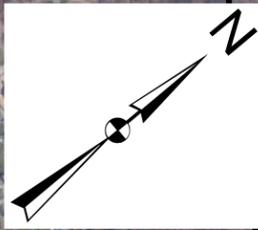
FIGURE 3:
NW/DNR MAPPED WETLANDS

I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVE TO NEW FORGE RD

BALTIMORE COUNTY, MD

DATE: NOVEMBER 2019





Legend

- Approximate Study Area
- 100-Year Floodplain
- Floodway



1" = 800'

SOURCE: FEMA

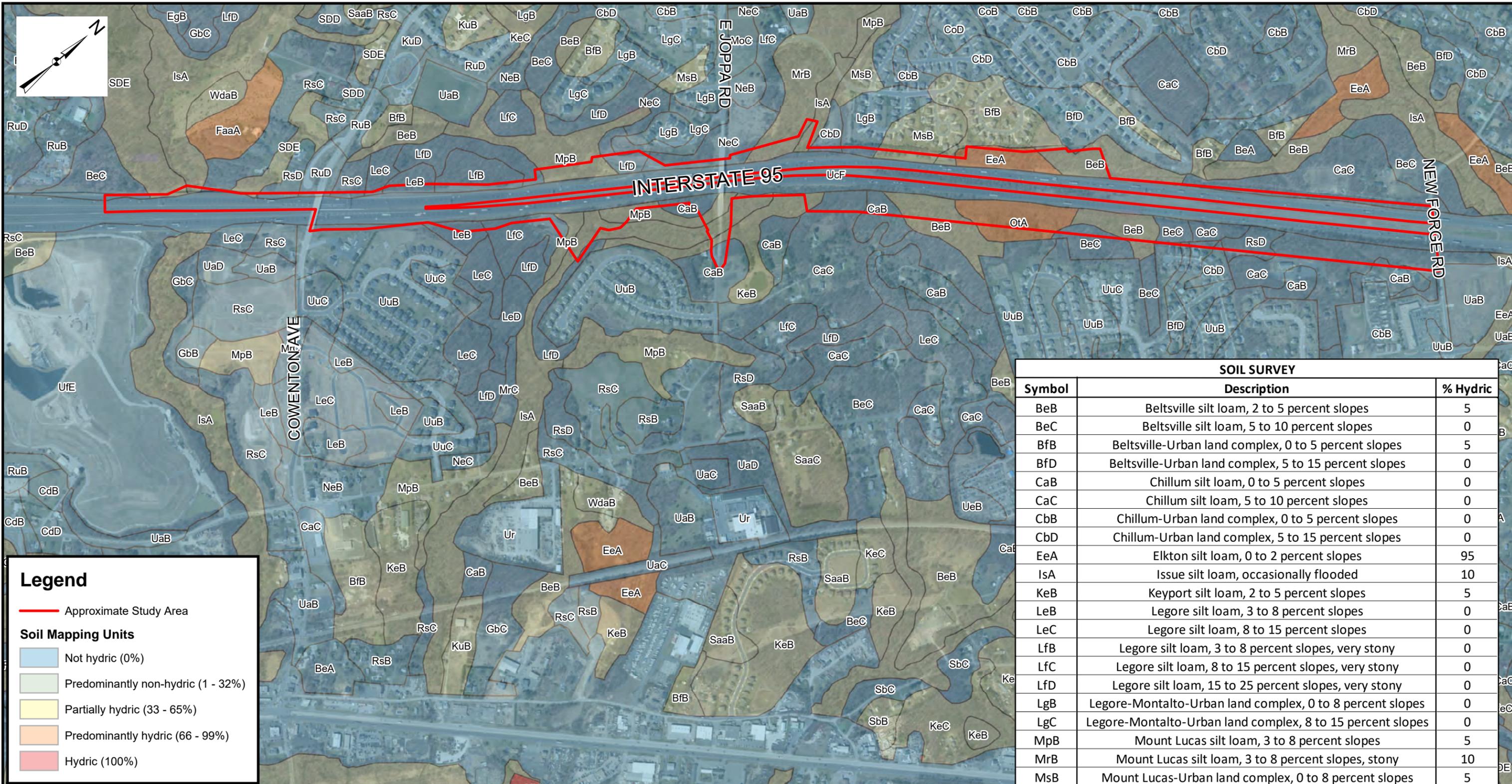
**FIGURE 4:
FEMA FLOODPLAIN MAP**

I-95 ETL NORTHBOUND EXTENSION
COWENTON AVE TO NEW FORGE RD

BALTIMORE COUNTY, MD

DATE: NOVEMBER 2019





Legend

— Approximate Study Area

Soil Mapping Units

- Not hydric (0%)
- Predominantly non-hydric (1 - 32%)
- Partially hydric (33 - 65%)
- Predominantly hydric (66 - 99%)
- Hydric (100%)

0 400 800 1,600 Feet

1" = 800'

SOURCE: MD IMAP, NRCS

**FIGURE 5:
SOIL SURVEY MAP**

**I-95 ETL NORTHBOUND EXTENSION
COWENTON AVE TO NEW FORGE RD**

BALTIMORE COUNTY, MD

DATE: NOVEMBER 2019

SOIL SURVEY		
Symbol	Description	% Hydric
BeB	Beltsville silt loam, 2 to 5 percent slopes	5
BeC	Beltsville silt loam, 5 to 10 percent slopes	0
BfB	Beltsville-Urban land complex, 0 to 5 percent slopes	5
BfD	Beltsville-Urban land complex, 5 to 15 percent slopes	0
CaB	Chillum silt loam, 0 to 5 percent slopes	0
CaC	Chillum silt loam, 5 to 10 percent slopes	0
CbB	Chillum-Urban land complex, 0 to 5 percent slopes	0
CbD	Chillum-Urban land complex, 5 to 15 percent slopes	0
EeA	Elkton silt loam, 0 to 2 percent slopes	95
IsA	Issue silt loam, occasionally flooded	10
KeB	Keyport silt loam, 2 to 5 percent slopes	5
LeB	Legore silt loam, 3 to 8 percent slopes	0
LeC	Legore silt loam, 8 to 15 percent slopes	0
LfB	Legore silt loam, 3 to 8 percent slopes, very stony	0
LfC	Legore silt loam, 8 to 15 percent slopes, very stony	0
LfD	Legore silt loam, 15 to 25 percent slopes, very stony	0
LgB	Legore-Montalto-Urban land complex, 0 to 8 percent slopes	0
LgC	Legore-Montalto-Urban land complex, 8 to 15 percent slopes	0
MpB	Mount Lucas silt loam, 3 to 8 percent slopes	5
MrB	Mount Lucas silt loam, 3 to 8 percent slopes, stony	10
MsB	Mount Lucas-Urban land complex, 0 to 8 percent slopes	5
NeC	Neshaminy silt loam, 8 to 15 percent slopes	0
OtA	Othello silt loams, 0 to 2 percent slopes, northern coastal plain	95
RsC	Russett fine sandy loam, 5 to 10 percent slopes	0
RsD	Russett fine sandy loam, 10 to 15 percent slopes	0
RuD	Russett fine sandy loam, 5 to 15 percent slopes	0
SDE	Sassafras and Croom soils, 15 to 25 percent slopes	5
UcF	Udorthents, highway, 0 to 65 percent slopes	0
UuB	Urban land-Udorthents complex, 0 to 8 percent slopes	0
UuC	Urban land-Udorthents complex, 8 to 15 percent slopes	0





3.2 RARE, THREATENED, AND ENDANGERED SPECIES

MDTA sent a letter to the Maryland Department of Natural Resources (MDNR) Wildlife and Heritage Service to determine if state-listed rare, threatened or endangered (RTE) species are present in the Study Area. MDNR Wildlife and Heritage responded in a letter dated August 22, 2017 that there are no official state-or federally-listed plant or animal species within the Study Area (**Appendix A**).

MDTA sent a letter to MDNR Environmental Review Unit (ERU) to determine the presence of anadromous finfish or other fish in the Study Area. MDNR ERU responded in a letter dated September 13, 2017 that there are anadromous fish within Gunpowder Falls (classified as Use IV) and Little Gunpowder Falls (classified as Use III); however, MDNR ERU's response was in reference to a larger Study Area and the Study Area that is the subject of this report will not impact these waters (**Appendix A**).

Through coordination with USFWS, no federally-listed threatened or endangered species are known to exist within the Study Area other than occasional transient individuals. The USFWS Online Certification Letters documenting these results, dated October 3, 2019, can be found in Appendix A. It should be noted that while the Northern Long-Eared Bat (*Myotis septentrionalis*) was flagged by the USFWS system, per the USFWS Chesapeake Bay Field Office (CBFO) website, the only areas in Maryland with documented maternity roosts are in Garrett and Allegany Counties. This project is located in Baltimore County, Maryland and would therefore not be located within 150 feet of a known maternity roost tree or within 0.25 miles of a known hibernaculum. However, the project would result in more than 15 acres of clearing, therefore, coordination with CBFO is currently ongoing.

3.3 CULTURAL AND HISTORICAL RESOURCE COORDINATION

MDTA sent a letter to the Maryland Historic Trust (MHT) to determine if historic properties will be affected. MHT responded in a letter dated August 22, 2017 stating no historic properties will be affected by the project (**Appendix A**).

3.4 FIELD DELINEATION

Field investigations were conducted in August and December 2017 to confirm and update the previous delineation and determine the presence of new wetlands and waterways within the Study Area. Follow-up field investigations were conducted in August 2019 to collect additional information for delineated waterways on the northbound side. On the northbound side of I-95, 12 non-tidal wetlands and 24 potential waterways were identified. On the southbound side, eight non-tidal wetlands and eight potential waterways were identified.

Wetland Determination Data Forms for the representative wetland and upland sample plots were completed for both new wetlands identified and wetlands that were previously delineated under the I-95 ETL Section 100 project but have since changed. Locations of the delineated systems



are shown on the Delineated Resource Maps in **Appendix B**. For wetlands that were previously delineated under the I-95 ETL Section 100 project, and whose boundaries were confirmed to still be accurate, no new Wetland Determination Data Forms were completed. Instead, the data forms from the Section 100 wetland delineation report (MDTA, 2003) are being used to characterize these wetlands. Datasheets were completed for waterways on the northbound side of I-95; however, datasheets were not completed for waterways on the southbound side. All relevant data forms are presented in **Appendix C**. Due to the location of this site along the boundary between geographic regions, both Atlantic Coastal Plain and Eastern Mountain Piedmont forms were used for the new and modified wetland delineations. Photographic documentation of the new and modified systems is presented in **Appendix D**. The wetlands and waterways descriptions below are presented in the order they are located (south to north) along the highway.

A preliminary Jurisdictional Determination was conducted by MDE and USACE on May 29, 2020, to review the delineated resources discussed below. The report has been revised to reflect the outcome of that meeting. For more detailed information, please see the meeting minutes presented in **Appendix E**.

3.4.1 NORTHBOUND WETLAND DESCRIPTIONS

BRBR-WET21

BRBR-WET21 is a palustrine scrub-shrub wetland (PSS) located in the southeastern portion of the Study Area on the northbound side of I-95 (**Appendix B, Map 2**). The wetland is approximately 154 square feet (0.003 acres) in size. Primary hydrologic indicators included surface water. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included spicebush (*Lindera benzoin*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), and whitegrass (*Leersia virginica*, FACW). Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping. BRBR-WET21 was previously delineated under the I-95 ETL Section 100 project.

WET D

WET D is a palustrine forested wetland (PFO) located in the southeastern portion of the Study Area on the northbound side of I-95 (**Appendix B, Map 2**). The wetland is approximately 2,760 square feet (0.063 acres) in size. Primary hydrologic indicators included surface water, high water table, saturation, algal mat or crust, and water-stained leaves. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included green ash, sweetgum (*Liquidambar styraciflua*, FAC), red maple (*Acer rubrum*, FAC), red oak (*Quercus rubra*, FACU), spicebush, multiflora rose (*Rosa multiflora*, FACU), lurid sedge (*Carex lurida*, OBL), whitegrass, poison ivy (*Toxicodendron radicans*, FAC), and Virginia creeper (*Parthenocissus quinquefolia*, FACU). Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix and Redox Dark Surface Soil Indicators. This wetland feature is not shown on NWI or DNR GIS mapping.



BRBR-WET22-PEM

BRBR-WET22-PEM is a palustrine emergent wetland (PEM) located to the northwest of WET D on the northbound side of I-95 (**Appendix B, Maps 2-3**). The wetland is approximately 6,884 square feet (0.158 acres) in size. Primary hydrologic indicators included surface water. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included whitegrass. Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Soil Indicator. BRBR-WET22 was previously delineated under the I-95 ETL Section 100 project. This wetland feature is not shown on NWI or DNR GIS mapping.

BRBR-WET22-PSS

BRBR-WET22-PSS is a PSS wetland located to the north of BRBR-WET22-PEM on the northbound side of I-95 (**Appendix B, Map 3**). The wetland is approximately 966 square feet (0.022 acres) in size. Primary hydrologic indicators included surface water and saturation. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included green ash, poison ivy, and whitegrass. Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

WET F

WET F is a PEM wetland located to the south of East Joppa Road on the northbound side of I-95 (**Appendix B, Map 3**). The wetland is approximately 364 square feet (0.008 acres) in size. Primary hydrologic indicators included surface water, high water table, and saturation. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included green ash, sweetgum, rice cutgrass (*Leersia oryzoides*, OBL), Japanese stilt grass (*Microstegium vimineum*, FAC), and Japanese honeysuckle (*Lonicera japonica*, FACU). Soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

WET G

WET G is a PFO wetland located in the middle of the Study Area along the northbound side of I-95 (**Appendix B, Maps 3 & 4**). The wetland is approximately 5,621 square feet (0.129 acres) in size. Primary hydrologic indicators included surface water, high water table, saturation, water marks, and water-stained leaves. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included red maple, sweetgum, whitegrass, and poison ivy. Soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

WET H

WET H is a PEM wetland located to the southwest of WUS M along the northbound side of I-95 (**Appendix B, Map 4**). The wetland is approximately 1,317 square feet (0.03 acres) in size. Primary hydrologic indicators included surface water, high water table, saturation, and water-



stained leaves. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included woolgrass (*Scirpus cyperinus*, OBL) and soft rush (*Juncus effusus*, OBL). Soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

WET I

WET I is a PFO wetland located on the northbound side of I-95 at the southwestern end of BRBR-WET1 (**Appendix B, Map 4**). The wetland is approximately 292 square feet (0.006 acres) in size. Primary hydrologic indicators included water-stained leaves. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included black gum (*Nyssa sylvatica*, FAC), highbush blueberry (*Vaccinium corymbosum*, FACW), and soft rush. Soils within the sample plot are hydric, meeting the Redox Dark Surface Soil Indicator. WET I is an expansion of BRBR-WET1, which was previously delineated under the I-95 ETL Section 100 project. This wetland feature is shown on NWI and DNR GIS mapping.

BRBR-WET1

BRBR-WET1 is a PFO wetland located to the southeast of GPJR-WUS2A along the northbound side of I-95 (**Appendix B, Maps 4-5**). The wetland is approximately 67,307 square feet (1.545 acres) in size and was originally delineated under the I-95 ETL Section 100 project. JMT confirmed the accuracy of the previously delineated boundary; therefore, a new data form was not completed. A data form was not included in the 2003 wetland delineation report for Section 100 and, consequently, no data form for this wetland is included in **Appendix C**. This feature is shown on NWI and DNR GIS mapping.

GPJR-WET1

GPJR-WET1 was a PFO wetland located in the northeastern portion of the Study Area on the northbound side of I-95 that has since been impacted by construction (**Appendix B, Map 5**). The wetland was approximately 3,431 square feet (0.079 acres) in size and was originally delineated under the I-95 ETL Section 100 project. JMT confirmed the accuracy of the previously delineated boundary; therefore, a new data form was not completed and the data form from the 2003 delineation is included in **Appendix C**. Primary hydrologic indicators included saturation in the upper 12 inches and drainage patterns. The vegetation within the wetland was hydrophytic. Dominant vegetation included red maple, sweet gum, black gum, arrow wood (*Viburnum recognitum*, FACW), roundleaf greenbrier (*Smilax rotundifolia*, FAC), and jewelweed (*Impatiens capensis*, FACW). Soils within the sample plot were hydric. This wetland feature was not shown on NWI or DNR GIS mapping.

WET J

WET J was a PFO wetland located in the northeastern portion of the Study Area on the northbound side of I-95 that has since been impacted by construction (**Appendix B, Map 5**). The wetland was approximately 3,716 square feet (0.085 acres) in size. Primary hydrologic indicators observed included surface water, saturation, and water-stained leaves. The



vegetation within the wetland was hydrophytic. The dominant vegetation within the sample plot included red maple, sweetgum, jack-in-the-pulpit (*Arisaema triphyllum*, FACW), false nettle (*Boehmeria cylindrica*, FACW), poison ivy, bulrush (*Scirpus atrovirens*, OBL), Japanese stiltgrass, and whitegrass. Soils within the sample plot were hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature was not shown on NWI or DNR GIS mapping.

WET K

WET K was a PEM and palustrine unconsolidated bottom (PUB) wetland located along the northbound side of I-95 south of New Forge Road that has since been impacted by construction (**Appendix B, Map 6**); it was approximately 511 square feet (0.012 acres) in size. Primary hydrologic indicators included surface water and saturation. The vegetation within the wetland was hydrophytic. The dominant vegetation within the sample plot included sweetgum, Japanese stilt grass, and whitegrass. Soils within the sample plot were hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature was not shown on NWI or DNR GIS mapping.

3.4.2 NORTHBOUND WATERWAYS DESCRIPTIONS

BRBR-WUS1

BRBR-WUS1 is a perennial stream located on the northbound side of I-95, north and south of East Joppa Road (**Appendix B, Maps 2-3**). The channel is a continuation of the channel delineated as BRBR-WUS7 and flow continues outside of the Study Area to the south. BRBR-WUS1 is a tributary to the Bird River, a traditional navigable water (TNW). Bank slopes are 3:1 and range between 3 and 5 feet in height; at the time of delineation, flow within the channel was 3 to 6 inches deep. The substrate consists of cobble, gravel, and sand. BRBR-WUS1 was previously delineated under the I-95 ETL Section 100 project.

WUS Q

WUS Q is an ephemeral channel located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The channel originates at the boundary of BRBR-WET21 and flows into BRBR-WUS1, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and range between 1 and 3 feet in height; at the time of delineation no flow was observed within the channel. The substrate consists of cobble, gravel, sand, silt, and vegetation.

WUS R

WUS R is an ephemeral channel located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The channel originates to the north of WUS Q and flows southeast into BRBR-WUS1, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and 1 foot in height; at the time of delineation no flow was observed within the channel. The substrate consists of gravel and sand.



BRBR-WUS8

BRBR-WUS8 is a perennial stream located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The stream originates from BRBR-WUS11, carried under I-95 through a cross culvert, and flows southeast into BRBR-WUS1, a tributary to the Bird River, a TNW. Bank slopes are 2:1 to vertical and range between 2 and 4 feet in height; at the time of delineation flow in the channel was 2 to 4 inches deep. The substrate consists of sand, silt, and muck. BRBR-WUS8 was previously delineated under the I-95 ETL Section 100 project.

WUS S

WUS S is an intermittent stream located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The stream originates from a structure that appears to be associated with a nearby underground water line and flows northeast into BRBR-WUS8, a tributary to the Bird River, a TNW. Bank slopes are 4:1 and range between 0 and 1 foot in height. At the time of delineation flow within the channel was 1 to 2 inches deep. The substrate consists of silt, vegetation, and muck.

BRBR-WUS7

BRBR-WUS7 is a perennial stream located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2-3**). The channel is a continuation of the channel delineated as BRBR-WUS1 northeast of East Joppa Road and flows southwest into the segment of BRBR-WUS1 located south of BRBR-WUS8. BRBR-WUS7 is a tributary to the Bird River, a TNW. Bank slopes are 2:1 and range between 2 and 4 feet in height; at the time of delineation flow within the channel ranged between 2 to 18 inches deep. The substrate consists of sand, silt, gravel, cobble, and muck. BRBR-WUS7 was previously delineated under the I-95 ETL Section 100 project.

WUS G

WUS G is an ephemeral channel located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The stream originates at the boundary of WET D and flows south outside of the Study Area into BRBR-WUS7, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and range between 3 and 12 inches in height; at the time of delineation there was no flow observed within the channel. The substrate consists of sand, silt, and vegetation.

WUS H

WUS H is an ephemeral channel located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The stream originates at the boundary of WET D and flows south outside of the Study Area, eventually draining into BRBR-WUS7, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and 6 inches in height; at the time of delineation there was no flow observed within the channel. The substrate consists of gravel, sand, and silt.



WUS F

WUS F is an ephemeral channel located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The stream originates at the boundary of BRBR-WET22-PEM and drains into WET D. Bank slopes are 2:1 and range between 12 and 16 inches in height; at the time of delineation there was no flow observed within the channel. The substrate consists of cobble, sand, silt, and muck.

WUS T

WUS T is an ephemeral channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 3**). The stream originates to the northeast of East Joppa Road and flows northeast, parallel to East Joppa Road, into BRBR-WUS1, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and range between 2 and 4 feet in height; at the time of delineation there was no flow observed within the channel. The substrate consists of cobble, gravel, sand, and silt.

BRBR-WUS2

BRBR-WUS2 is an intermittent stream located on the northbound side of I-95 north of East Joppa Road (**Appendix B, Map 3**). The stream originates outside of the Study Area and flows southwest into BRBR-WUS1, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and 6 inches in height; at the time of delineation there was no flow observed within the channel. The substrate consists of gravel, sand, and silt. BRBR-WUS2 was previously delineated as BRBR-WUS2 under the I-95 ETL Section 100 project.

WUS J

WUS J is an intermittent stream located on the northbound side of I-95 north of East Joppa Road (**Appendix B, Maps 3-4**). The stream originates at a cross-culvert under I-95 located at the confluence with WUS K. It flows southwest and eventually discharges into BRBR-WUS1, a tributary to the Bird River, a TNW. Bank slopes are 2:1 with banks ranging between 3 to 8 feet in height; at the time of delineation flow within the channel was between 0 to 2 inches deep. The substrate consists of cobble, gravel, sand, silt, and muck.

WUS L

WUS L is an intermittent stream located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 3-4**). The stream originates from the boundary of WET G and flows southwest outside of the Study Area. Bank slopes are 4:1 and 4 inches in height; at the time of delineation no flow was observed within the channel. The substrate consists of sand, silt, and muck.

WUS K

WUS K is an ephemeral channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 4**). The stream is a roadside swale that is fed by upland runoff and flows to the southwest into WUS J, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and range



between 2 and 6 feet in height; at the time of delineation there was no flow observed in the channel. The substrate consists of cobble, gravel, sand, silt, and riprap.

WUS M

WUS M is an ephemeral channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 4-5**). The stream originates at WET H and flows to the northeast into GPJR-WUS2A, which is a tributary to the Gunpowder River, a TNW. Bank slopes are 3:1 and range between 1 and 3 feet in height; at the time of delineation no flow was observed within the channel. The substrate consists of sand, silt, and muck.

GPJR-WUS2A

GPJR-WUS2A is an ephemeral channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). The stream is a continuation of WUS M and flows north into GPJR-WUS1 (a tributary to the Gunpowder River, a TNW), which flows into a culvert under I-95. Bank slopes are 2:1 and 3 feet in height; at the time of delineation there was no flow observed within the channel. The substrate consists of gravel, sand, and silt. GPJR-WUS2A was previously delineated under the I-95 ETL Section 100 project as one of two streams named GPJR-WUS2; its name was changed to disambiguate the two streams.

GPJR-WUS2B

GPJR-WUS2B is an intermittent channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). The stream originates from BRBR-WET1 and flows north into GPJR-WUS2A, a tributary to the Gunpowder River, a TNW. Bank slopes are 2:1 and range between 12 and 18 inches in height; at the time of delineation, no flow was observed within the channel. The substrate consists of cobble, gravel, and sand. GPJR-WUS2B was previously delineated under the I-95 ETL Section 100 project as one of two streams named GPJR-WUS2; its name was changed to disambiguate the two streams.

GPJR-WUS1

GPJR-WUS1 is an intermittent channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). The stream is a continuation of GPJR-WUS2A, eventually flowing into a cross culvert under I-95 and becoming perennial GPJR-WUS1, a tributary to the Gunpowder River, a TNW. Bank slopes are 2:1 and range between 2 and 4 feet in height; at the time of delineation, no flow was observed within the channel. The substrate consists of cobble, gravel, sand, and silt. GPJR-WUS1 was previously delineated under the I-95 ETL Section 100 project.

GPJR-WUS3

GPJR-WUS3 is an intermittent stream located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). The stream is a continuation of GPJR-WUS10B and flows southwest into BRBR-WET1. Bank slopes are vertical and range between 10 and 18 inches in height; at the



time of delineation there was no flow observed within the channel. The substrate consists of cobble, gravel, sand, and silt. GPJR-WUS3 was previously delineated under the I-95 ETL Section 100 project.

GPJR-WUS10B

GPJR-WUS10B is an intermittent stream located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). The stream originates outside of the Study Area from a stormwater outfall and flows west into GPJR-WUS3, a tributary to the Gunpowder River, a TNW. Bank slopes are vertical and 4 inches in height; at the time of delineation, no flow was observed within the channel. The substrate consists of gravel and sand. GPJR-WUS10B was previously delineated under the I-95 ETL Section 100 project.

GPJR-WUS1A

GPJR-WUS1A is an intermittent, concrete-lined channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). The stream flows into GPJR-WUS1, a tributary to the Gunpowder River, a TNW. At the time of delineation, no flow was observed within the channel. GPJR-WUS1A was previously delineated as part of GPJR-WUS1 under the I-95 ETL Section 100 project.

GPJR-WUS1B

GPJR-WUS1B is an intermittent channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). Prior to recent construction, the stream originated from GPJR-WET1; however, GPJR-WET1 no longer exists, and GPJR-WUS1B is now fed only by a stormwater outfall. The stream flows north into GPJR-WUS1A, a tributary to the Gunpowder River, a TNW. Bank slopes are 2:1 and range between 1 and 2 feet in height; at the time of delineation there was no flow observed within the channel. The substrate consists of cobble, gravel, sand, and silt. GPJR-WUS1B was delineated in the original Section 100 delineation as part of GPJR-WUS1. GPJR-WUS1B has been partially impacted by construction activities.

WUS O

WUS O is an intermittent channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). Prior to recent construction, the stream originated from WET J; however, WET J no longer exists, and WUS O is now fed only by upland runoff. It flows west into WUS P, a tributary to the Gunpowder River, a TNW. Bank slopes vary between vertical and 2:1 with banks 6 inches in height; at the time of delineation, no flow was observed within the channel. The substrate consists of gravel and sand. WUS O has been partially impacted by construction activities.

WUS P

WUS P is an ephemeral channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Maps 5-6**). The stream is a concrete swale that flows to the southwest into



GPJR-WUS1A, a tributary to the Gunpowder River, a TNW. WUS P transitions to an intermittent channel approximately 60 feet prior to its confluence with GPJR-WUS1A, below its confluence with WUS O. Bank slopes are 2:1 and 2 feet in height; at the time of delineation there was no flow observed within the channel. The substrate is concrete. WUS P was delineated in 2017 and has since been partially impacted by construction activities.

3.4.3 SOUTHBOUND WETLAND DESCRIPTIONS

WMHG-WET10

WMHG-WET10 is a PEM wetland located on the southbound side of I-95, south of Cowenton Avenue (**Appendix B, Map 1**). The wetland is approximately 13,352 square feet (0.307 acres) in size and continues outside of the Study Area. The wetland directly abuts WMHG-WUS9 (Honeygo Run). Primary hydrologic indicators included the presence of oxidized rhizospheres on living roots. Dominant species included common reed (*Phragmites australis*, FACW). The soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping. WMHG-WET10 was delineated within the previously delineated boundary of WMHG-WET4 under the I-95 ETL Section 100 project; however, its boundary appears to have changed due to subsequent widening of I-95.

BRBR-WET5-PFO

BRBR-WET5-PFO is a PFO wetland located along the southbound side of I-95, north of Cowenton Avenue (**Appendix B, Map 2**). The wetland is approximately 56,961 square feet (1.308 acres) in size. The wetland originates outside of the Study Area and drains to BRBR-WUS11 and BRBR-WUS13A. Primary hydrologic indicators included the presence of water-stained leaves and oxidized rhizospheres on living roots. Dominant species included red maple, pin oak (*Quercus palustris*, FACW), spice bush, southern arrowwood, bladder sedge (*Carex intumescens*, FACW), soft rush, Japanese stiltgrass, poison ivy, and roundleaf greenbriar. The soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is shown on NWI GIS mapping. BRBR-WET5 was delineated within the previously delineated boundaries of BRBR-WET9 and BRBR-WET5 under the I-95 ETL Section 100 project.

BRBR-WET5-PEM

BRBR-WET5-PEM is a PEM wetland located along the southbound side of I-95, north of Cowenton Avenue (**Appendix B, Map 2**). The wetland is approximately 6,604 square feet (0.152 acres) in size and drains to BRBR-WUS11. Primary hydrologic indicators included the presence of oxidized rhizospheres on living roots. Dominant species included bladder sedge, soft rush, Japanese stiltgrass, poison ivy, and seedbox (*Ludwigia alternifolia*, OBL). The soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is shown on NWI GIS mapping. BRBR-WET5 was delineated within the previously delineated boundaries of BRBR-WET9 and BRBR-WET5 under the I-95 ETL Section 100 project.



BRBR-WET6

BRBR-WET6 is a PEM wetland located on the southbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The wetland is approximately 2,553 square feet (0.058 acres) in size. The wetland originates at the outfall of a recently constructed stormwater management facility. BRBR-WET6 drains to BRBR-WUS13A. Primary hydrologic indicators included the presence of saturation and oxidized rhizospheres on living roots. Dominant species included broadleaf cattail (*Typha latifolia*, OBL), poison ivy, and roundleaf greenbriar. The soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping. BRBR-WET6 was previously delineated under the I-95 ETL Section 100 project.

BRBR-WET98-PFO

BRBR-WET98-PFO is a PFO wetland located on the southbound side of I-95, immediately north of East Joppa Road (**Appendix B, Map 3**). The wetland is approximately 20,533 square feet (0.432 acres) in size. The wetland originates outside of the Study Area and drains to BRBR-WUS9. Primary hydrologic indicators included the presence of water-stained leaves and oxidized rhizospheres on living roots. Dominant species included red maple, pin oak, black gum, spice bush, southern arrowwood, Japanese stiltgrass, soft rush, bladder sedge, poison ivy, and roundleaf greenbriar. The soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

BRBR-WET98-PEM

BRBR-WET98-PEM is a PEM wetland located along the southbound side of I-95, immediately north of East Joppa Road (**Appendix B, Map 3**). The wetland is approximately 4,069 square feet (0.131 acres) in size. PEM datapoint was taken because of mosaic areas of PEM that exist within the larger PFO wetland. This area consists mostly of a constructed ditch that provides a hydrologic connection between the two areas classified as palustrine forested. The ditch was constructed to help convey surface flow downslope to BRBR-WUS9. Primary hydrologic indicators included the presence of oxidized rhizospheres on living roots. Dominant species included jewel weed, broadleaf cattail, and sensitive fern (*Onoclea sensibilis*, FACW). The soils in the sample plot are hydric, meeting the Redox Dark Surface Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

BRBR-WET99

BRBR-WET99 is a narrow PEM wetland swale located on the southbound side of I-95, immediately north of East Joppa Road (**Appendix B, Map 4**). The wetland is approximately 611 square feet (0.014 acres) in size. The wetland drains to BRBR-WUS9. The relatively small area does not show signs of channelization, which would be characteristic of a watercourse. Primary hydrologic indicators included the presence of oxidized rhizospheres on living roots. Dominant species included bladder sedge. The soils in the sample plot are hydric, meeting the Depleted Matrix soil indicator. This wetland feature is not shown on NWI or DNR GIS mapping.



GPJR-WET4

GPJR-WET4 is a PFO wetland located along the southbound side of I-95, north of East Joppa Road (**Appendix B, Maps 4-5**). The wetland is approximately 49,009 square feet (1.125 acres) in size. The wetland originates outside of the Study Area in some places and drains to GPJR-WUS4. A large stormwater facility located upslope from the wetland limits may be contributing to the wetland hydrology. Primary hydrologic indicators included the presence of oxidized rhizospheres on living roots. Dominant species included red maple, pin oak, highbush blueberry, southern arrowwood, spicebush, Japanese honeysuckle, and poison ivy. The soils in the sample plot are hydric, meeting the Redox Dark Surface Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping. GPJR-WET4 is located in close proximity to the previously delineated GPJR-WET4 under the I-95 ETL Section 100 project that was subsequently deemed non-jurisdictional during the Jurisdictional Determination review in 2004 presumably because it was mowed and managed as part of a roadway ditch (MDTA, 2003).

WET95A

WET95A is a PFO wetland located along the southbound side of I-95, north of East Joppa Road (**Appendix B, Maps 5-6**). The wetland is approximately 13,724 square feet (0.315 acres) in size and continues outside of the Study Area. The wetland directly abuts a perennial stream channel located outside of the Study Area. A large stormwater facility located upslope from the wetland limits may be contributing to the hydrology. Primary hydrologic indicators included the presence of a high water table, saturation, and oxidized rhizospheres on living roots. Dominant species included red maple, black gum, Japanese stiltgrass, Japanese honeysuckle, and poison ivy. The soils in the sample plot are hydric, meeting the Loamy Gleyed Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

WET96A

WET96A is a PFO wetland located on the southbound side of I-95, north of East Joppa Road (**Appendix B, Map 6**). The wetland is approximately 3,815 square feet (0.087 acres) in size and continues outside of the Study Area; it appears to be an isolated feature. Primary hydrologic indicators included the presence of oxidized rhizospheres on living roots. Dominant species included red maple, southern arrowwood, spice bush, soft rush, multiflora rose, and roundleaf greenbriar. The soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator; however, the area appears to be reverting to upland. This wetland feature is not shown on NWI or DNR GIS mapping.

3.4.4 SOUTHBOUND WATERWAY DESCRIPTIONS

WMHG-WUS9

WMHG-WUS9 (Honeygo Run) is a perennial stream located on the southbound side of I-95, south of Cowenton Road (**Appendix B, Map 1**). The channel originates from the west and flows east through the Study Area before crossing below I-95. The stream is approximately 12 feet wide and



flows 3 inches deep were observed within the Study Area. Bank slopes range from 3:1 to 4:1 and are fully vegetated. The substrate consists of mostly sand with few cobbles and gravel. WMHG-WUS9 was previously delineated under the I-95 ETL Section 100 project.

BRBR-WUS11

BRBR-WUS11 is a perennial stream located on the southbound side of I-95, north of Cowenton Avenue (**Appendix B, Map 2**). The stream originates from the west, outside of the Study Area and flows southeast into a cross culvert under I-95, becoming BRBR-WUS8, a tributary to the Bird River, a TNW. The substrate consists of mostly sand with cobble and gravel. The channel averages 5 feet wide with vertical banks, and a water depth of 2 to 9 inches. The channel is heavily incised with vertical banks. BRBR-WUS11 was previously delineated under the I-95 ETL Section 100 project.

BRBR-WUS13A

BRBR-WUS13A is a perennial stream located on the southbound side of I-95, north of Cowenton Avenue (**Appendix B, Map 2**). The stream is a channelized ditch paralleling the road bank which also receives hydrology from BRBR-WET5, BRBR-WET6, and a stormwater management facility. The stream flows southwest into BRBR-WUS11. The stream has vertical, undercut banks with very little vegetation. The substrate consists of mostly sand with some cobble and gravel. The channel averages 2 feet wide, with a water depth of 1 to 4 inches. BRBR-WUS13A was previously delineated under the I-95 ETL Section 100 project.

BRBR-WUS9

BRBR-WUS9 is a perennial stream located on the southbound side of I-95, immediately north of East Joppa Road (**Appendix B, Maps 3-4**). The stream enters the Study Area from the north and flows south into a cross culvert under I-95, becoming BRBR-WUS1, a tributary to the Bird River, a TNW. BRBR-WUS9 is hydrologically connected to BRBR-WET99, BRBR-WUS99, and BRBR-WUS98. Bank slopes range from 2:1 to 3:1, with some unvegetated areas present. The substrate consists of mostly sand with some cobble and gravel. The channel averages 3 feet wide, with a water depth of 3 to 8 inches. BRBR-WUS9 was previously delineated under the I-95 ETL Section 100 project.

BRBR-WUS98

BRBR-WUS98 is a perennial stream located on the southbound side of I-95, immediately north of East Joppa Road (**Appendix B, Map 4**). The stream enters the Study Area from the north and flows south into BRBR-WUS99, a tributary to the Bird River, a TNW. The channel looks to have recently developed due to increased surface runoff from the surrounding area. The stream has vertical banks with very little vegetation for stabilization. The substrate consists of mostly sand and silt. The channel averages 1.5 feet wide, with a water depth of 0 to 1 inch.



BRBR-WUS99

BRBR-WUS99 is an intermittent and perennial stream located on the southbound side of I-95, immediately north of East Joppa Road (**Appendix B, Maps 3-4**). The channel consists of a concrete flume that flows southwest and parallels I-95 before reaching a confluence with BRBR-WUS9, where the stream becomes perennial, a tributary to the Bird River, a TNW. BRBR-WUS99 begins to capture groundwater approximately 250 feet upstream from its confluence with BRBR-WUS9. A coating of brown and green algae was observed, beginning at the upstream end of the channel. The concrete flume has numerous areas of damaged concrete for groundwater to infiltrate. The channel averages 9 feet wide, with an average water depth below 1 inch.

GPJR-WUS4

GPJR-WUS4 is a perennial stream located on the southbound side of I-95, north of the East Joppa Road overpass (**Appendix B, Map 5**). The channel originates from GPJR-WET4 and conveys surface water northeast until reaching the confluence with GPJR-WUS1, a tributary to the Gunpowder River, a TNW. Bank slopes range from 2:1 to 3:1 and are fully vegetated. The substrate consists of mostly sand and silt. The channel averages 1.5 feet wide, with a water depth of 0 to 1 inch. GPJR-WUS4 was previously delineated under the I-95 ETL Section 100 project.

GPJR-WUS1

GPJR-WUS1 is a perennial stream located on the southbound side of I-95, north of the East Joppa Road overpass (**Appendix B, Map 5**). The stream is a continuation of its intermittent portion that is conveyed from the northbound side of I-95 to the southbound side via a pipe culvert, daylighting as a perennial stream. The stream continues north outside of the Study Area and flows into a tributary to the Gunpowder River, a TNW. Bank slopes range from 2:1 to 3:1, with stable banks. The substrate consists of cobbles, sands, and gravel. The channel averages 5 feet wide, with a water depth from 2 to 6 inches. GPJR-WUS1 was previously delineated under the I-95 ETL Section 100 project.

3.4.5 NON-JURISDICTIONAL RESOURCE DESCRIPTIONS

WUS I

On May 29, 2020, USACE determined that this resource is a non-jurisdictional roadside ditch. WUS I was previously delineated as an ephemeral channel located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 3**). The ditch originates to the southwest of WET F and flows into BRIS-WET3. Bank slopes are 2:1 and range between 12 and 18 inches in height; at the time of delineation there was no flow observed within the channel. The substrate consists of gravel, sand, silt, muck, and vegetation.

BRIS-WET3

On May 29, 2020, MDE and USACE determined that this resource is not jurisdictional because per MDTA, 2003 it was constructed as a stormwater management structure to treat I-95 runoff.



BRIS-WET3 was previously delineated as a PEM wetland located northeast of BRBR-WET22-PSS on the northbound side of I-95 (**Appendix B, Map 3**). The resource is approximately 639 square feet (0.014 acres) in size and was originally delineated under the I-95 ETL Section 100 project. JMT confirmed the accuracy of the previously delineated boundary; therefore, a new data form was not completed and the data form from the 2003 delineation is included in **Appendix C**. Primary hydrologic indicators included inundation. The vegetation within the resource is hydrophytic. The dominant vegetation included narrow leaf cattail (*Typha angustifolia*, OBL) and black willow (*Salix nigra*, FACW). Soils in the sample plot are hydric. This resource is not shown on NWI or DNR GIS mapping.

4.0 CONCLUSION

During the wetland and waterways delineation, JMT delineated 11 wetlands and 21 waterways on the northbound side of I-95. Wallace Montgomery delineated eight wetlands and eight waterways on the southbound side of I-95. Following the 2020 preliminary Jurisdictional Determination, one waterway and one wetland were reclassified as non-jurisdictional. The remaining environmental features may be subject to regulation by the USACE and MDE. Impacts to these areas may require modifications to the existing I-95 ETL Section 100 permits, and mitigation for potential impacts may be required.



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US Department of Agriculture, Soil Conservation Service. 2016. *Web Soil Survey of Baltimore County, Maryland*.

US Department of the Interior, U.S. Geological Survey. 2016. *White Marsh, MD 7.5 x 7.5 Minute Quadrangle*.

US Fish and Wildlife Service. 1992. *Digital NWI Map for White Marsh, Maryland Quadrangle*.



APPENDIX A AGENCY CORRESPONDENCE



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127

<http://www.fws.gov/chesapeakebay/>
<http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html>

In Reply Refer To:

October 03, 2019

Consultation Code: 05E2CB00-2020-SLI-0012

Event Code: 05E2CB00-2020-E-00033

Project Name: I-95 ETL Northbound Extension Cowenton Avenue to New Forge Road

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive

Annapolis, MD 21401-7307

(410) 573-4599

Project Summary

Consultation Code: 05E2CB00-2020-SLI-0012

Event Code: 05E2CB00-2020-E-00033

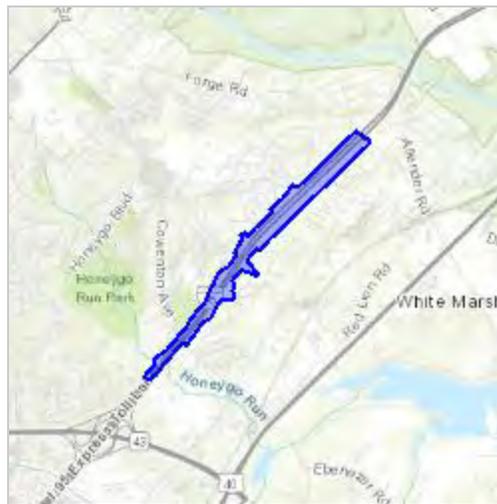
Project Name: I-95 ETL Northbound Extension Cowenton Avenue to New Forge Road

Project Type: TRANSPORTATION

Project Description: The purpose of the proposed improvements is to address capacity and safety needs within the project limits and thereby improve access, mobility and safety for local, regional, and inter-regional traffic, including passenger, freight, and transit vehicles. The project includes a northbound single lane ETL extension from MD 43 to south of MD 152, a northbound auxiliary lane from MD 152 to MD 24/MD 924, overpass reconstruction, and two noise walls along northbound I-95. The proposed improvements will be constructed in multiple phases while safely maintaining traffic. Minor impacts to environmental resources are anticipated and will be mitigated in coordination with federal/state regulations.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/39.39700503726443N76.4310274054557W>



Counties: Baltimore, MD

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Projects with a federal nexus that have tree clearing = to or > 15 acres: 1. REQUEST A SPECIES LIST 2. NEXT STEP: EVALUATE DETERMINATION KEYS 3. SELECT EVALUATE under the Northern Long-Eared Bat (NLEB) Consultation and 4(d) Rule Consistency key Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- [PEM1Ex](#)

FRESHWATER FORESTED/SHRUB WETLAND

- [PFO1A](#)

RIVERINE

- [R4SBC](#)
 - [R3UBH](#)
-



Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Mark Belton, Secretary
Joanne Throwe, Deputy Secretary

18-MIS-020

September 13th, 2017

William Pines
Maryland Transportation Authority
300 Authority Dr.
Baltimore, MD 21222

Subject: Fisheries Information for the MDTA I-95 Express Toll Lanes Northern Transition from MD43 to MD 152, MDTA Tracking# KH-3009, Baltimore and Harford Counties

Dear Mr. Pines;

The above referenced project has been reviewed to determine fisheries species near the proposed project. The proposed activities include adding a single express toll lane on northbound I-95 from MD 43 to MD 152, a slip ramp north of MD 43 to allow ETL users to merge into general purpose lanes, replace the Bradshaw Overpass, replace the Old Joppa Road Overpass, and reconstruct the parapets on the Big Gunpowder and Little Gunpowder bridges and construct two noise walls.

The project will impact Gunpowder falls which is classified as a Use IV (supports adult trout) stream. Anadromous fish are present in Gunpowder Falls. Generally no instream work is allowed in Use IV streams with anadromous fish between February 15th and June 15th of any given year to protect spawning fish. In addition the project site is within a Sensitive Species Project Review Area. The MDDNR Wildlife Heritage Service should be contacted to see if they have any additional Rare, Threatened or Endangered species concerns or comments. In addition the project will impact Little Gunpowder Falls which is classified as a Use III stream. Anadromous fish are also present in Gunpowder Falls. Generally no instream work is allowed in Use III stream containing anadromous fish from October 1st through June 15th of any given year to protect spawning fish. If adequate sediment and erosion controls can be implemented during construction which will prevent sediment laden runoff from reaching these streams, and no instream work is required, than a Time of Year restriction period would not need to be implemented. The applicant is encouraged to strictly adhere to the approved sediment and erosion control plan to prevent further sedimentation downstream during construction.

DNR has documented many resident fish species from Gunpowder Falls and Little Gunpowder Falls and their tributaries by our Maryland Biological Stream Survey. MBSS data can be accessed via the MDDNR web page at <http://streamhealth.maryland.gov>, allowing access to resource surveys in neighboring tributaries.

If you have any further questions, please feel free to contact me at 410 260-8736.

Sincerely;

Christopher Aadland
Environmental Review Program



Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Mark Belton, Secretary
Joanne Throwe, Deputy Secretary

August 22, 2017

Mr. William N. Pines
Maryland Transportation Authority
300 Authority Drive
Baltimore, MD 21222-2200

RE: Environmental Review for MDTA I-95 Express Toll Lanes Northern Transition, from MD 43 to MD 152, MDTA Tracking #KH-3009, Harford and Baltimore Counties, Maryland.

Dear Mr. Pines:

The Wildlife and Heritage Service has determined that there are no official State or Federal records for listed plant or animal species within the delineated area shown on the map provided. As a result, we have no specific concerns regarding potential impacts or recommendations for protection measures at this time. Please let us know however if the limits of proposed disturbance or overall site boundaries change and we will provide you with an updated evaluation.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2017.1226.ha/ba

2017 04621

Recd 8/7/17

F
FHWA

TJT/ER



Maryland
Transportation
Authority

Larry Hogan
Governor

Boyd K. Rutherford
Lt. Governor

Pete K. Rahn
Chairman

Katherine Bays Armstrong
Peter J. Basso
Dontae Carroll
William H. Cox, Jr.
William C. Ensor, III
W. Lee Gaines, Jr.
John Von Paris

Kevin C. Reigut
Executive Director

300 Authority Drive
Baltimore MD 21222-2200
410-537-7500
410-537-7803 (fax)
711 (MD Relay)
1-888-754-0098

e-mail: mdta@mdta.maryland.gov

www.mdta.maryland.gov

July 25, 2017

Ms. Elizabeth Hughes
State Historic Preservation Officer
Maryland Historic Trust
100 Community Place, 3rd floor
Crownsville, MD 21032-2023

Attention: Ms. Beth Cole

RE: Maryland Transportation Authority (MDTA)
I-95 Express Toll Lanes Northern Transition
From MD 43 to MD 152
MDTA Tracking # KH-3009
Baltimore and Harford Counties, MD
Request for Project Review and Comment

Dear Ms. Hughes:

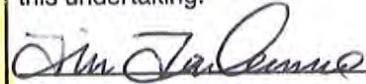
The Maryland Transportation Authority (MDTA) is proposing to begin staged implementation of the I-95 Section 200 approved NEPA FONSI improvements. The first stage of implementation will include adding a single express toll lane (ETL) on northbound I-95 from MD 43 to MD 152, a slip ramp north of MD 43 to allow ETL users to merge into the general purpose lanes (GPLs), replacement of the Bradshaw Overpass, replacement of the Old Joppa Road Overpass, reconstructing the parapets on the Big Gunpowder and Little Gunpowder bridges, and two noise walls.

The proposed improvements will address capacity, operational, and safety concerns that exist along northbound I-95. The proposed improvements will be constructed within different contracts to address constructability, maintenance of traffic, and yearly funding availability. This is a state project with state funding and permit authorizations that will follow the Maryland Historical Trust Act §§ 5A-325 and 5A-326 of the State Finance and Procurement Article for state level compliance. The project will also require a joint permit from the Maryland Department of the Environment (MDE) and the U.S. Army Corps of Engineers (USACE).

We request your project review and comment. Please include the MDTA tracking number listed in the subject line above in all future correspondence. If you have questions on the proposed project or require additional information to complete your review, please contact me at wpines@mdta.state.md.us or (410) 931-0808.

Sincerely,


William N. Pines, P.E.
Director of Project Development

The Maryland Historical Trust has determined that there are no historic properties affected by this undertaking.
 Date 8/22/17

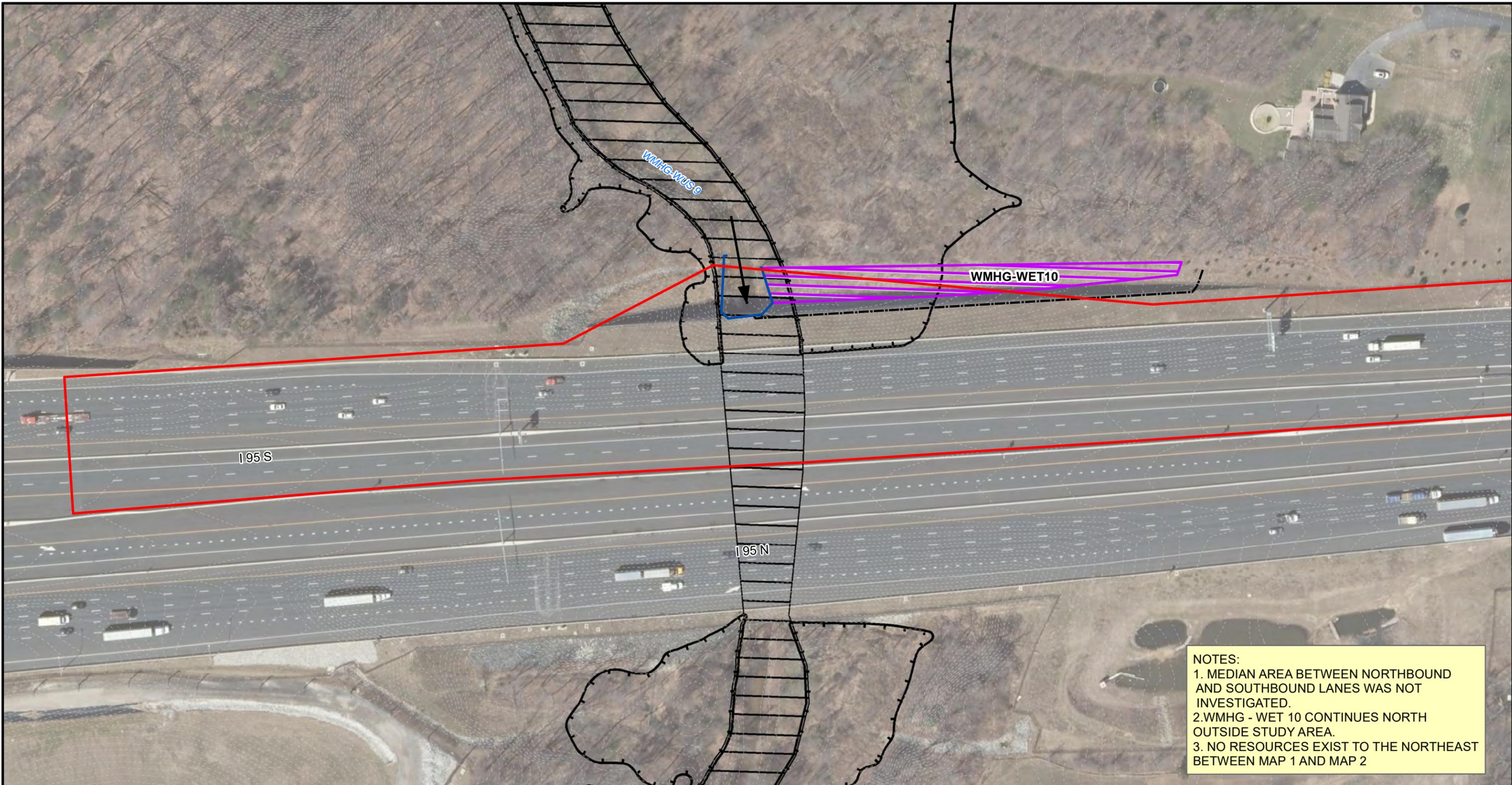
Enclosure: Location Map

cc:
MDTA: James Harkness, Serena Liu, Peter Mattejat, Pam McNicholas, Ning Zhou
JMT: Stacey Gill, Leyla Lange, Michael Rothenheber
RKK: Sally Kishter, Greg O'Hare, Mitchell Scott, Ed Tinney
CDM Smith: David Greenwood

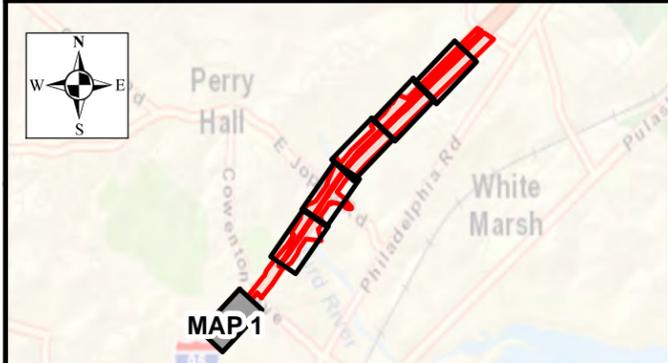
1A TJT/ER 8/22/17



APPENDIX B DELINEATED RESOURCE MAPS

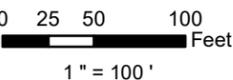


NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. WMHG - WET 10 CONTINUES NORTH OUTSIDE STUDY AREA.
 3. NO RESOURCES EXIST TO THE NORTHEAST BETWEEN MAP 1 AND MAP 2



Legend	
Approx. Study Area	Streams
Matchlines	Non-Jur.
2 ft. Contours	Eph.
Culverted Streams	Int.
Wetland Buffer	Per.
100-Year Floodplain	Wetlands
Floodway	Non-Jur.
	PEM
	PFO
	PSS
	PUB



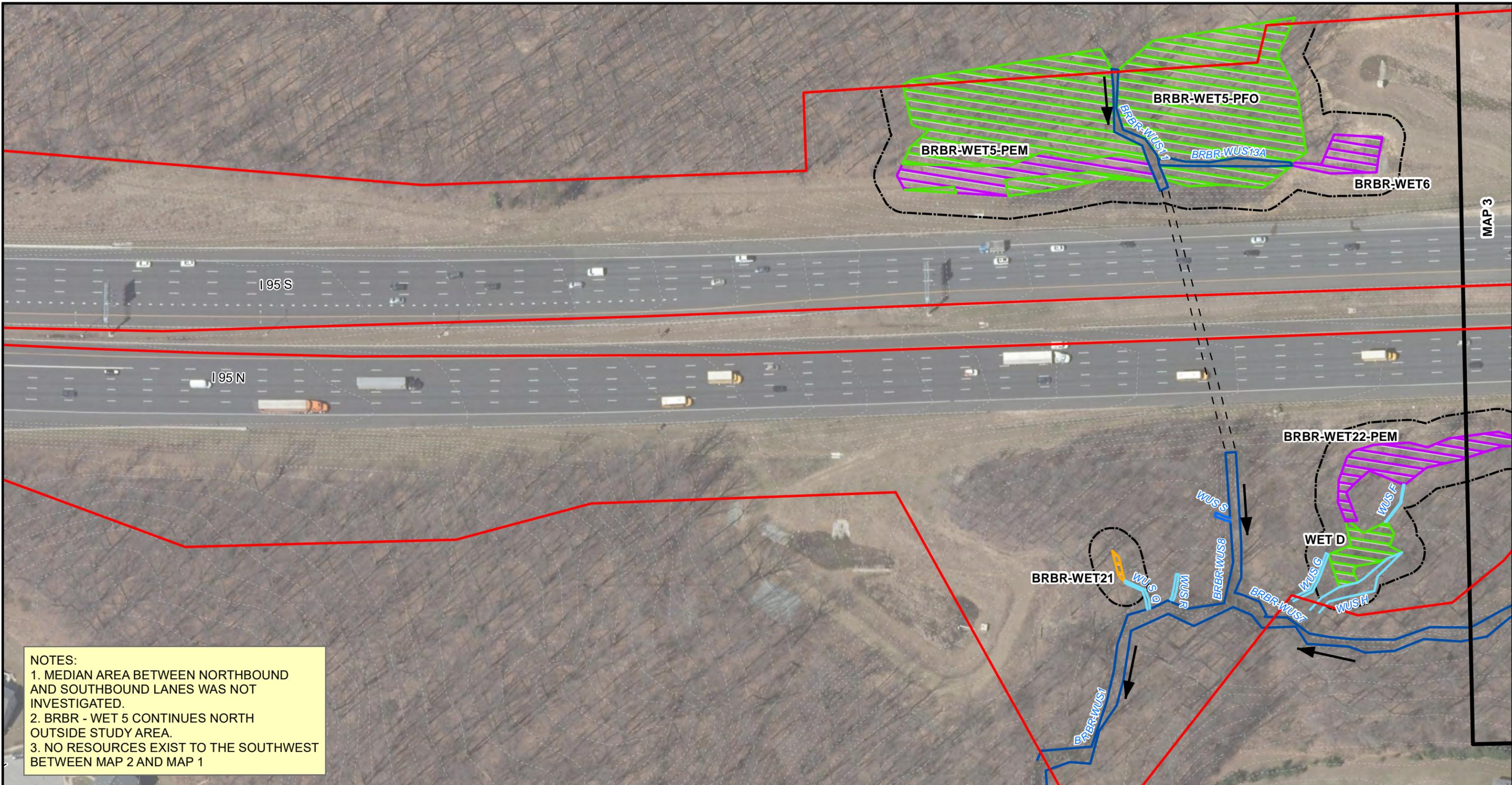



CREATED BY: ADS
 SOURCE: MD IMAP, FEMA
 BALTIMORE COUNTY

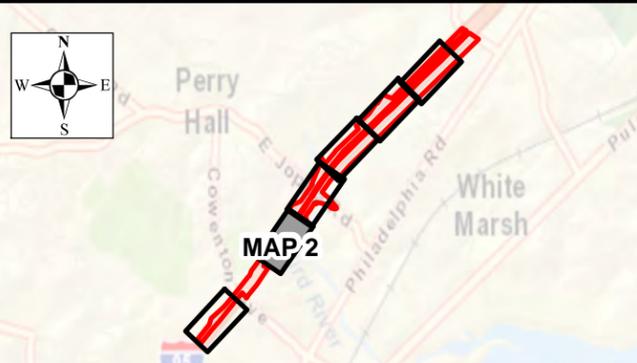
**DELINEATED RESOURCE
 MAP 1**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: JULY 2020



NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. BRBR - WET 5 CONTINUES NORTH OUTSIDE STUDY AREA.
 3. NO RESOURCES EXIST TO THE SOUTHWEST BETWEEN MAP 2 AND MAP 1



Legend	
Approx. Study Area	Streams Non-Jur.
Matchlines	Streams Eph.
2 ft. Contours	Streams Int.
Culverted Streams	Streams Per.
Wetland Buffer	Wetlands Non-Jur.
100-Year Floodplain	Wetlands PEM
Floodway	Wetlands PFO
	Wetlands PSS
	Wetlands PUB

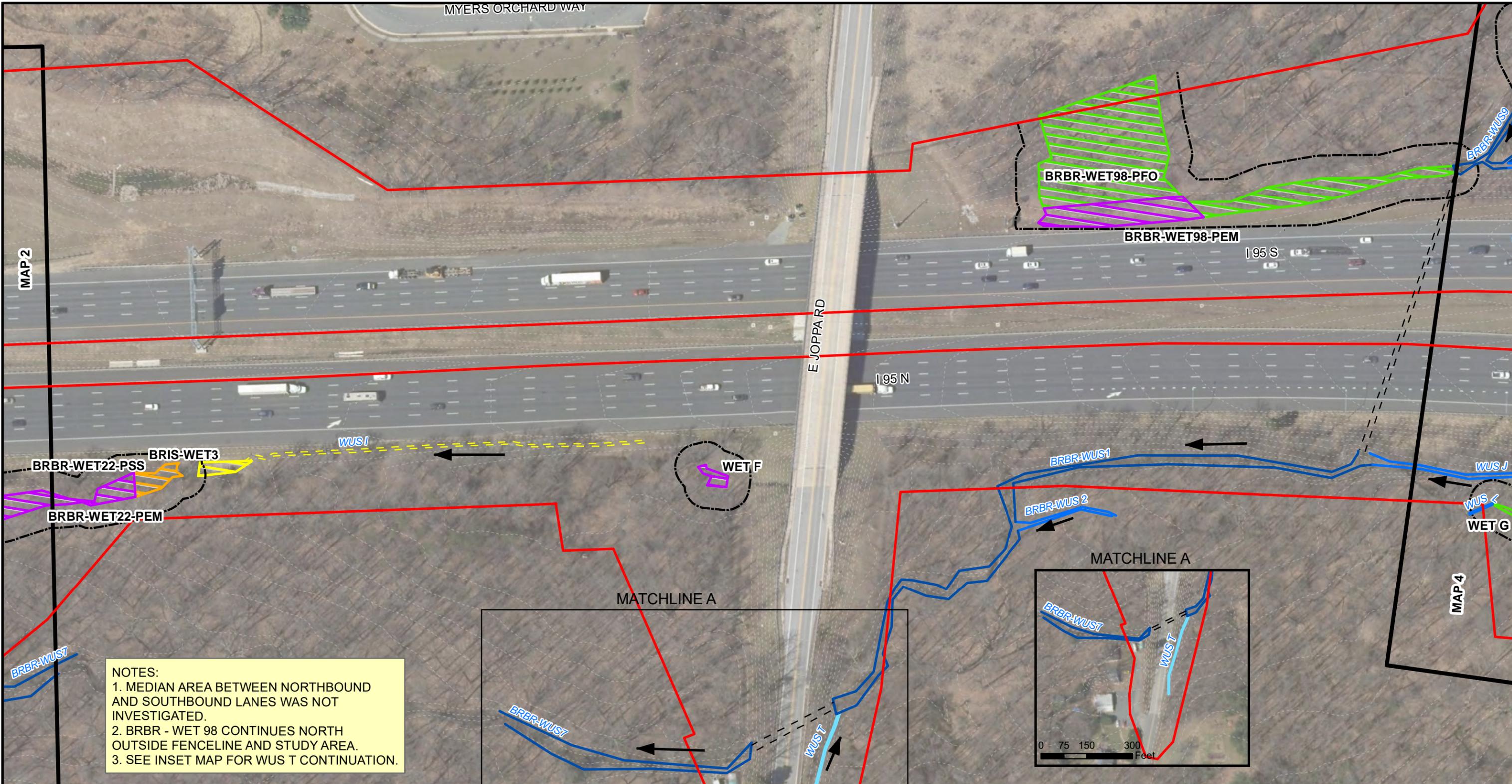
0 25 50 100 Feet
 1" = 100'

CREATED BY: ADS
 SOURCE: MD IMAP, FEMA
 BALTIMORE COUNTY

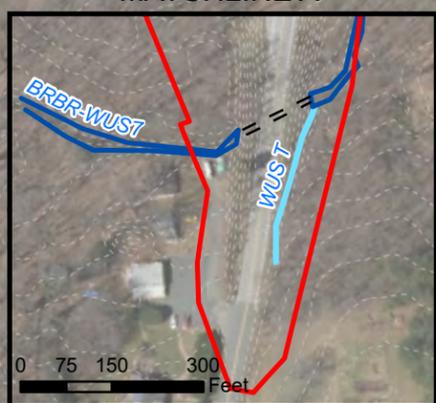
**DELINEATED RESOURCE
 MAP 2**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: JULY 2020



NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. BRBR - WET 98 CONTINUES NORTH OUTSIDE FENCELINE AND STUDY AREA.
 3. SEE INSET MAP FOR WUS T CONTINUATION.



Legend	
	Approx. Study Area
	Matchlines
	2 ft. Contours
	Culverted Streams
	Wetland Buffer
	Non-Jur. Streams
	Eph. Streams
	Int. Streams
	Per. Streams
	Non-Jur. Wetlands
	PEM Wetlands
	PFO Wetlands
	PSS Wetlands
	PUB Wetlands
	100-Year Floodplain
	Floodway

1" = 100'

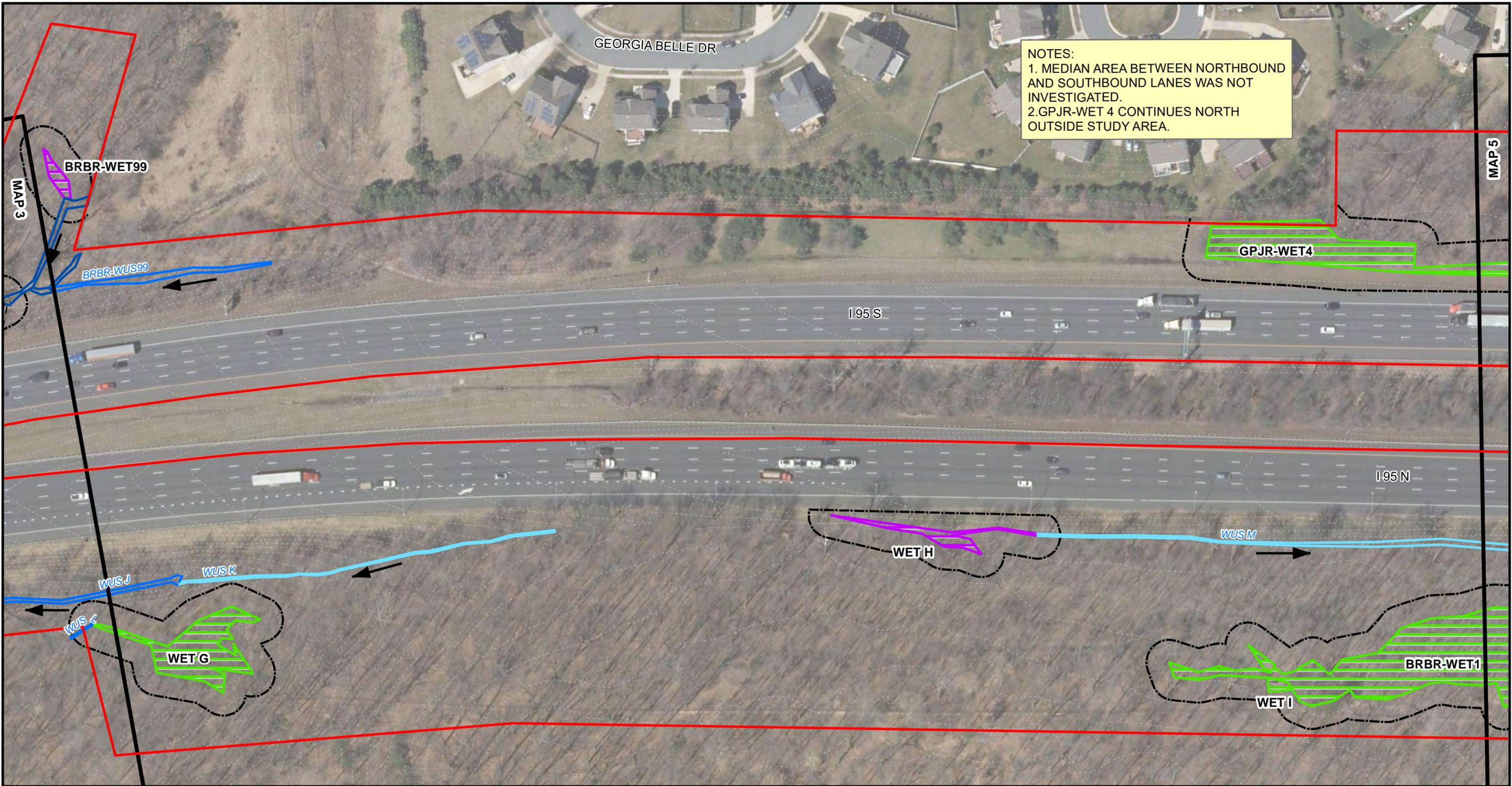
CREATED BY: ADS
 SOURCE: MD IMAP, FEMA
 BALTIMORE COUNTY

**DELINEATED RESOURCE
 MAP 3**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: JUNE 2020

NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. GPJR-WET 4 CONTINUES NORTH OUTSIDE STUDY AREA.



Legend	
	Approx. Study Area
	Matchlines
	2 ft. Contours
	Culverted Streams
	Wetland Buffer
	Non-Jur. Streams
	Eph. Streams
	Int. Streams
	Per. Streams
	Non-Jur. Wetlands
	PEM Wetlands
	PFO Wetlands
	PSS Wetlands
	PUB Wetlands
	100-Year Floodplain
	Floodway

1" = 100'

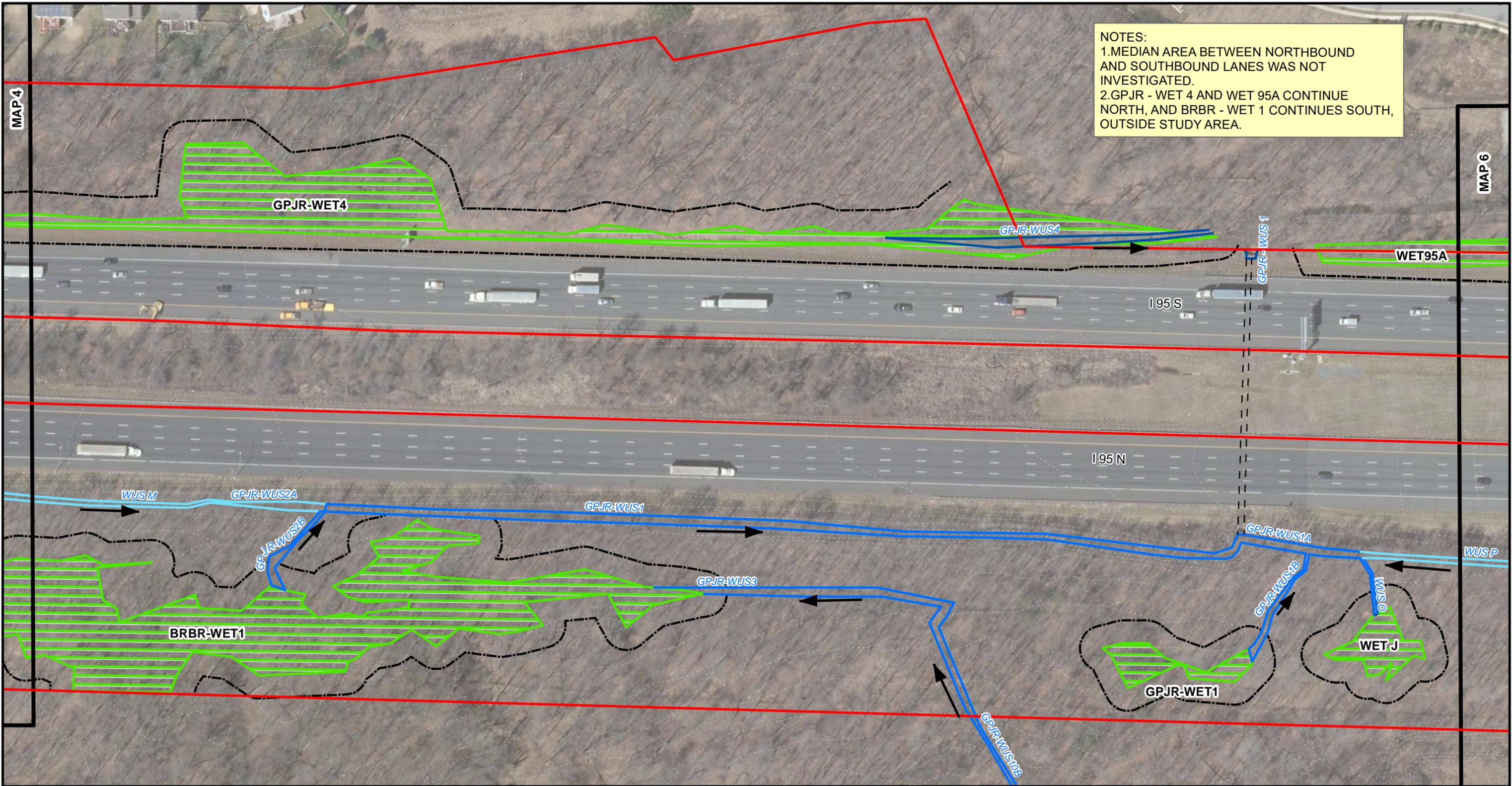
CREATED BY: ADS
 SOURCE: MD IMAP, FEMA
 BALTIMORE COUNTY

**DELINEATED RESOURCE
 MAP 4**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: JULY 2020

NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. GPJR - WET 4 AND WET 95A CONTINUE NORTH, AND BRBR - WET 1 CONTINUES SOUTH, OUTSIDE STUDY AREA.



Legend	
	Approx. Study Area
	Matchlines
	2 ft. Contours
	Culverted Streams
	Wetland Buffer
	Non-Jur. Streams
	Eph. Streams
	Int. Streams
	Per. Streams
	Non-Jur. Wetlands
	PEM Wetlands
	PFO Wetlands
	PSS Wetlands
	PUB Wetlands
	100-Year Floodplain
	Floodway

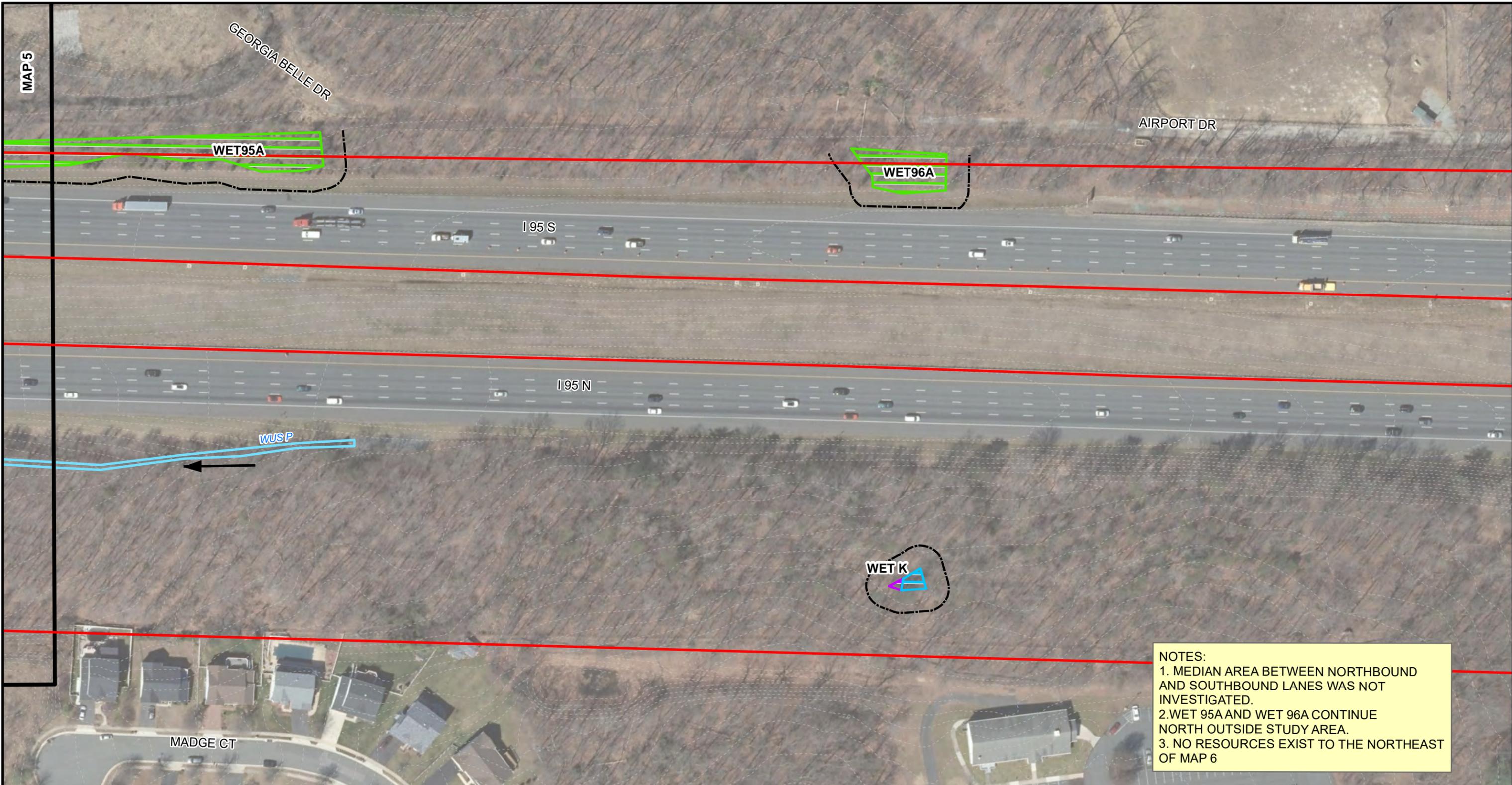
1" = 100'

CREATED BY: ADS
 SOURCE: MD IMAP, FEMA
 BALTIMORE COUNTY

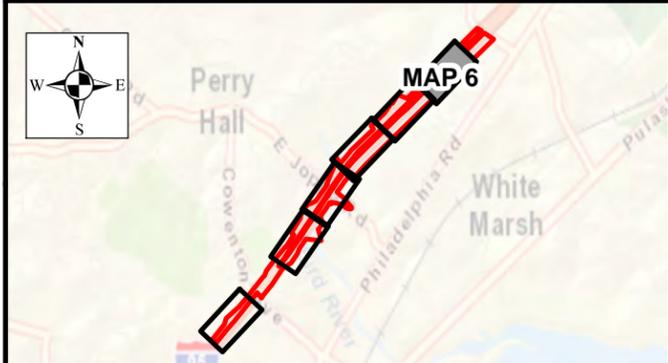
**DELINEATED RESOURCE
 MAP 5**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: JULY 2020



NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. WET 95A AND WET 96A CONTINUE NORTH OUTSIDE STUDY AREA.
 3. NO RESOURCES EXIST TO THE NORTHEAST OF MAP 6



Legend	
	Approx. Study Area
	Matchlines
	2 ft. Contours
	Culverted Streams
	Wetland Buffer
Streams	
	Non-Jur.
	Eph.
	Int.
	Per.
Wetlands	
	Non-Jur.
	PEM
	PFO
	PSS
	PUB
	100-Year Floodplain
	Floodway

1" = 100'

CREATED BY: ADS
 SOURCE: MD IMAP, FEMA
 BALTIMORE COUNTY

**DELINEATED RESOURCE
 MAP 6**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: JULY 2020



APPENDIX C

WETLAND, UPLAND, AND STREAM DATASHEETS

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/21/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: BRBR-WET21-SP
 Investigator(s): E. Markel, S. Knight Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Depression/Hillslope Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR or MLRA): MLRA 149 Lat: 39.393252 Long: -76.433153 Datum: NAD 83
 Soil Map Unit Name: MpB - Mount Lucas silt loam, 3 to 8 percent slopes NWI classification: PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Fed by unmanaged roadside runoff uphill drainage patterns not defined enough to be streams. Within area previously delineated under I-95 ETL Section 100 permit.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Mari Deposits (B15) (LLR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)(LRR T, U)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2"</u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: BRBR-WET21-SP

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	4 (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	4 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	100% (A/B)
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
			= Total Cover		
50% of total cover: _____			20% of total cover: _____		
Sapling/Shrub Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet:	
1. <u>Lindera benzoin</u>	20	Yes	FACW	Total % Cover of:	Multiply by:
2. <u>Fraxinus pennsylvanica</u>	5	Yes	FACW	OBL species _____	x1= _____
3. _____	_____	_____	_____	FACW species _____	x2= _____
4. _____	_____	_____	_____	FAC species _____	x3= _____
5. _____	_____	_____	_____	FACU species _____	x4= _____
6. _____	_____	_____	_____	UPL species _____	x5= _____
7. _____	_____	_____	_____	Column Totals: _____ (A)	_____ (B)
8. _____	_____	_____	_____	Prevalence Index = B/A = _____	
			25 = Total Cover		
50% of total cover: <u>12.5</u>			20% of total cover: <u>5</u>		
Herb Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:	
1. <u>Leersia virginica</u>	20	Yes	FACW	_____ 1 - Rapid Test for Hydrophytic Vegetation	
2. <u>Fraxinus pennsylvanica</u>	10	Yes	FACW	<u>X</u> 2 - Dominance Test is > 50%	
3. <u>Celastrus orbiculatus</u>	5	No	FACU	_____ 3 - Prevalence Index is ≤ 3.0 ¹	
4. <u>Juncus effusus</u>	5	No	OBL	_____ Problematic Hydrophytic Vegetation ¹	(Explain)
5. <u>Viburnum dentatum</u>	5	No	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
6. <u>Onoclea sensibilis</u>	5	No	FACW	Definitions of Four Vegetation Strata:	
7. _____	_____	_____	_____	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	
8. _____	_____	_____	_____	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.	
9. _____	_____	_____	_____	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
10. _____	_____	_____	_____	Woody vine – All woody vines greater than 3.28 ft in height.	
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
			50 = Total Cover		
50% of total cover: <u>25</u>			20% of total cover: <u>10</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?	
1. _____	_____	_____	_____	Yes	<input checked="" type="checkbox"/>
2. _____	_____	_____	_____	No	<input type="checkbox"/>
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
			= Total Cover		
50% of total cover: _____			20% of total cover: _____		

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: BRBR-WET21-SP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 4/1	95	10YR 5/8	5	C	M	Silty Clay	
5-12+	10YR 6/1	70	10YR 6/8	10	C	M	Sandy Clay	
	10YR 7/2	20					Sandy Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LLR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils ³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T, U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/21/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: BRBR-WET21-UPL
 Investigator(s): E. Markel, S. Knight Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 5
 Subregion (LRR or MLRA): MLRA 149 Lat: 39.393887 Long: -76.432641 Datum: NAD 83
 Soil Map Unit Name: MpB - Mount Lucas silt loam, 3 to 8 percent slopes NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)(LRR T, U)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No geomorphic position, no hydrology	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: BRBR-WET21-UPL

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. <u>Acer rubrum</u>	25	Yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC:	5 (A)
2. <u>Liquidambar styraciflua</u>	25	Yes	FAC	Total Number of Dominant Species Across All Strata:	11 (B)
3. <u>Nyssa sylvatica</u>	5	No	FAC	Percent of Dominant Species That Are OBL, FACW, or FAC:	45% (A/B)
4. <u>Liriodendron tulipifera</u>	5	No	FACU		
5. <u>Ulmus americana</u>	5	No	FAC		
6. <u>Fagus grandifolia</u>	5	No	FACU		
7. _____					
8. _____					
	70 = Total Cover				
	50% of total cover: 35	20% of total cover: 14			
Sapling/Shrub Stratum (Plot size: <u>30'</u>)				Prevalence Index Worksheet:	
1. <u>Fraxinus pennsylvanica</u>	3	No	FACW	Total % Cover of:	Multiply by:
2. <u>Rosa multiflora</u>	10	Yes	FACU	OBL species _____ x1= _____	
3. <u>Lindera benzoin</u>	3	No	FACW	FACW species _____ x2= _____	
4. <u>Lonicera tatarica</u>	10	Yes	FACU	FAC species _____ x3= _____	
5. <u>Quercus rubra</u>	3	No	FACU	FACU species _____ x4= _____	
6. _____				UPL species _____ x5= _____	
7. _____				Column Totals: _____ (A) _____ (B)	
8. _____				Prevalence Index = B/A = _____	
	29 = Total Cover				
	50% of total cover: 14.5	20% of total cover: 5.8			
Herb Stratum (Plot size: <u>30'</u>)				Hydrophytic Vegetation Indicators:	
1. <u>Parthenocissus quinquefolia</u>	20	Yes	FACU	_____ 1 - Rapid Test for Hydrophytic Vegetation	
2. <u>Lonicera japonica</u>	20	Yes	FACU	_____ 2 - Dominance Test is > 50%	
3. <u>Fraxinus pennsylvanica</u>	5	No	FACW	_____ 3 - Prevalence Index is ≤ 3.0 ¹	
4. <u>Leersia virginica</u>	20	Yes	FACW	_____ Problematic Hydrophytic Vegetation ¹	(Explain)
5. <u>Liriodendron tulipifera</u>	5	No	FACU		
6. <u>Celastrus orbiculatus</u>	20	Yes	FACU		
7. <u>Thelypteris noveboracensis</u>	10	No	FAC		
8. <u>Quercus montana</u>	5	No	UPL		
9. <u>Onoclea sensibilis</u>	5	No	FACW		
10. _____					
11. _____					
12. _____					
	110 = Total Cover				
	50% of total cover: 55	20% of total cover: 22			
Woody Vine Stratum (Plot size: <u>30'</u>)				Definitions of Four Vegetation Strata:	
1. <u>Celastrus orbiculatus</u>	5	Yes	FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	
2. <u>Toxicodendron radicans</u>	5	Yes	FAC	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.	
3. <u>Smilax rotundifolia</u>	5	Yes	FAC	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
4. _____				Woody vine – All woody vines greater than 3.28 ft in height.	
5. _____					
	15 = Total Cover				
	50% of total cover: 7.5	20% of total cover: 3			
				Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: BRBR-WET21-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	2.5Y 5/2	95	10YR 4/6	5	C	M	Clay Loam	
3-8+	2.5Y 6/4	95	10YR 5/8	5	C	M	Sandy Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LLR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils ³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T, U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/9/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET D-SP
 Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): MLRA 149 Lat: 39.393887 Long: -76.432641 Datum: NAD 83
 Soil Map Unit Name: IsA – Issue silt loam, occasionally flooded NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Seasonally saturated/ flooded, located downslope of road embankment, discharges to streams.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Mari Deposits (B15) (LLR U) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input checked="" type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)(LRR T, U)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>1</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>4</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>4</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Fed by road runoff and potentially groundwater.	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET D-SP

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Fraxinus pennsylvanica</u>	<u>25</u>	<u>Yes</u>	<u>FACW</u>
2. <u>Liquidambar styraciflua</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
45 = Total Cover			
50% of total cover: <u>22.5</u> 20% of total cover: <u>9</u>			
Sapling/Shrub Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer rubrum</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Fraxinus pennsylvanica</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Quercus rubra</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
4. <u>Lindera benzoin</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>
5. <u>Rosa multiflora</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
30 = Total Cover			
50% of total cover: <u>15</u> 20% of total cover: <u>6</u>			
Herb Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Lindera benzoin</u>	<u>2</u>	<u>No</u>	<u>FACW</u>
2. <u>Smilax rotundifolia</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
3. <u>Rosa multiflora</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
4. <u>Fraxinus pennsylvanica</u>	<u>2</u>	<u>No</u>	<u>FACW</u>
5. <u>Toxicodendron radicans</u>	<u>2</u>	<u>No</u>	<u>FAC</u>
6. <u>Parthenocissus quinquefolia</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
7. <u>Carex lurida</u>	<u>10</u>	<u>Yes</u>	<u>OBL</u>
8. <u>Carex vulpinoidea</u>	<u>5</u>	<u>No</u>	<u>FACW</u>
9. <u>Leersia virginica</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>
10. <u>Phragmites australis</u>	<u>2</u>	<u>No</u>	<u>FACW</u>
11. _____	_____	_____	_____
12. _____	_____	_____	_____
68 = Total Cover			
50% of total cover: <u>34</u> 20% of total cover: <u>13.6</u>			
Woody Vine Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Toxicodendron radicans</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Parthenocissus quinquefolia</u>	<u>2</u>	<u>Yes</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
7 = Total Cover			
50% of total cover: <u>3.5</u> 20% of total cover: <u>1.4</u>			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 73% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x1= _____
FACW species _____	x2= _____
FAC species _____	x3= _____
FACU species _____	x4= _____
UPL species _____	x5= _____
Column Totals: _____ (A)	_____ (B)
Prevalence Index = B/A = _____	

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is > 50%

_____ 3 - Prevalence Index is ≤ 3.0¹

_____ Problematic Hydrophytic Vegetation¹
(Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET D-SP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	98	7.5YR 5/6	2	C	M	Silty Clay Loam	
3-5	10YR 5/2	60	10YR 5/6	40	C	M	Clay	
5-8	10YR 4/6	93	10YR 4/6	2	C	M	Clay	
			10YR 7/8	5	C	M	Clay	
8-16+	10YR 6/8	70	Gley1 7/N	30	D	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LLR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils ³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T, U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 7/27/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: BRBR-WET22-SP2
 Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat Slope (%): 1
 Subregion (LRR or MLRA): MLRA 149 Lat: 39.394137 Long: -76.432813 Datum: NAD 83
 Soil Map Unit Name: MpB – Mount Lucas silt loam, 3 to 8 percent slopes NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Toe of slope depression. Wetland was delineated under I-95 ETL Section 100 permit.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Mari Deposits (B15) (LLR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)(LRR T, U)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2</u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: BRBR-WET22-SP2

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		
Sapling/Shrub Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		
Herb Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Leersia virginica</u>	<u>45</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Fraxinus pennsylvanica</u>	<u>10</u>	<u>No</u>	<u>FACW</u>	
3. <u>Carex vulpinoidea</u>	<u>15</u>	<u>No</u>	<u>FACW</u>	
4. <u>Parthenocissus quinquefolia</u>	<u>5</u>	<u>No</u>	<u>FACU</u>	
5. <u>Juncus effusus</u>	<u>5</u>	<u>No</u>	<u>OBL</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>40</u>		20% of total cover: <u>16</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x1= _____
FACW species _____	x2= _____
FAC species _____	x3= _____
FACU species _____	x4= _____
UPL species _____	x5= _____
Column Totals: _____ (A)	_____ (B)
Prevalence Index = B/A = _____	

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is > 50%

_____ 3 - Prevalence Index is ≤ 3.0¹

_____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: BRBR-WET22-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/2	98	10YR 8/8	2	C	M	Clay Loam	
2-8	10YR 5/2	60	Gley1 8/10Y	20	D	M	Clay	
			10YR 5/8	20	C	M	Clay	
8-12+	10YR 5/2	60	Gley2 8/10B	40	D	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils ³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T, U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 7/27/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: BRBR-WET22-SP1
 Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): MLRA 149 Lat: 39.394137 Long: -76.432813 Datum: NAD 83
 Soil Map Unit Name: MpB – Mount Lucas silt loam, 3 to 8 percent slopes NWI classification: PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Wetland was delineated under I-95 ETL Section 100 permit.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Mari Deposits (B15) (LLR U) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)(LRR T, U)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2</u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>1</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Fed by roadside drainage, including BRIS-WET3. Possibly intercepts groundwater.	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: BRBR-WET22-SP1

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
		<u> </u> = Total Cover		
		50% of total cover: <u> </u>	20% of total cover: <u> </u>	
Sapling/Shrub Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Fraxinus pennsylvanica</u>	<u>50</u>	<u>Yes</u>	<u>FACW</u>
2.	<u>Rubus sp.</u>	<u>10</u>	<u>No</u>	<u>NA</u>
3.				
4.				
5.				
6.				
7.				
8.				
		<u>60</u> = Total Cover		
		50% of total cover: <u>30</u>	20% of total cover: <u>12</u>	
Herb Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Parthenocissus quinquefolia</u>	<u>10</u>	<u>No</u>	<u>FACU</u>
2.	<u>Toxicodendron radicans</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>
3.	<u>Leersia virginica</u>	<u>25</u>	<u>Yes</u>	<u>FACW</u>
4.	<u>Liquidambar styraciflua</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
5.	<u>Fraxinus pennsylvanica</u>	<u>5</u>	<u>No</u>	<u>FACW</u>
6.	<u>Rubus sp.</u>	<u>5</u>	<u>No</u>	<u>NA</u>
7.				
8.				
9.				
10.				
11.				
12.				
		<u>75</u> = Total Cover		
		50% of total cover: <u>37.5</u>	20% of total cover: <u>15</u>	
Woody Vine Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Toxicodendron radicans</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2.				
3.				
4.				
5.				
		<u>10</u> = Total Cover		
		50% of total cover: <u>5</u>	20% of total cover: <u>2</u>	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u> </u>	x1= <u> </u>
FACW species <u> </u>	x2= <u> </u>
FAC species <u> </u>	x3= <u> </u>
FACU species <u> </u>	x4= <u> </u>
UPL species <u> </u>	x5= <u> </u>
Column Totals: <u> </u> (A)	<u> </u> (B)
Prevalence Index = B/A = <u> </u>	

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is > 50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: BRBR-WET22-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/2	98	10YR 5/6	2	C	M	Clay Loam	
2-6	10YR 4/1	60	10YR 6/8	20	C	M	Clay Loam	
			10YR 6/8	20	C	M	Clay Loam	
6-12+	7.5YR 6/8	95	10YR 6/1	5	D	M	Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils ³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T, U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/8/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET F-SP
 Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Toe of Slope Local relief (concave, convex, none): Concave Slope (%): 0-1
 Subregion (LRR or MLRA): MLRA 149 Lat: 39.396073 Long: -76.431189 Datum: NAD 83
 Soil Map Unit Name: CaB - Chillum silt loam, 0 to 5 percent slopes NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area Within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

HYDROLOGY

Wetland Hydrology Indicators:			Secondary Indicators (minimum of two required)		
Primary Indicators (minimum of one is required; check all that apply)					
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Mari Deposits (B15) (LLR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Water-Stained Leaves (B9)		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)			
Field Observations:			Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>1</u>			
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>			
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>8</u>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Likely receives hydrology from East Joppa Road. Isolated.					

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET F-SP

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		
Sapling/Shrub Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Fraxinus pennsylvanica</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Liquidambar styraciflua</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>		
Herb Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Leersia oryzoides</u>	<u>70</u>	<u>Yes</u>	<u>OBL</u>	
2. <u>Juncus effusus</u>	<u>10</u>	<u>No</u>	<u>OBL</u>	
3. <u>Microstegium vimineum</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	
4. <u>Lonicera japonica</u>	<u>30</u>	<u>Yes</u>	<u>FACU</u>	
5. <u>Lycopus americanus</u>	<u>10</u>	<u>No</u>	<u>OBL</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>75</u>		20% of total cover: <u>30</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index Worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species _____ x1= _____

FACW species _____ x2= _____

FAC species _____ x3= _____

FACU species _____ x4= _____

UPL species _____ x5= _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is > 50%

_____ 3 - Prevalence Index is ≤ 3.0¹

_____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET F-SP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 4/2	90	10YR 5/8	10	C	M	Clay	
5-12+	10YR 5/2	80	10YR 5/8	20	C	M	Sandy Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LLR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T,U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils ³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S,T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T,U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 7/27/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET D, BRBR-
WET22, F-UPL
 Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): MLRA 149 Lat: 39.393887 Long: -76.432641 Datum: NAD 83
 Soil Map Unit Name: MpB – Mount Lucas silt loam, 3 to 8 percent slopes NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area Within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Mari Deposits (B15) (LLR U)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Mari Deposits (B15) (LLR U)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Mari Deposits (B15) (LLR U)																				
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																				
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)																				
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)																				
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																				
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																				
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input type="checkbox"/> Water-Stained Leaves (B9)																					
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks:																					

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET D, BRBR-WET22, F-UPL

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Liriodendron tulipifera</u>	<u>40</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Acer rubrum</u>	<u>15</u>	<u>No</u>	<u>FAC</u>
3. <u>Liquidambar styraciflua</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
85 = Total Cover			
50% of total cover: <u>42.5</u>		20% of total cover: <u>17</u>	
Sapling/Shrub Stratum (Plot size: <u>30'</u>)			
1. <u>Ulmus rubra</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
2. <u>Lindera benzoin</u>	<u>35</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Rosa multiflora</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
4. <u>Liquidambar styraciflua</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
50 = Total Cover			
50% of total cover: <u>25</u>		20% of total cover: <u>10</u>	
Herb Stratum (Plot size: <u>30'</u>)			
1. <u>Parthenocissus quinquefolia</u>	<u>30</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Lindera benzoin</u>	<u>10</u>	<u>No</u>	<u>FACW</u>
3. <u>Toxicodendron radicans</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Geum canadense</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
5. <u>Celastrus orbiculatus</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
80 = Total Cover			
50% of total cover: <u>40</u>		20% of total cover: <u>16</u>	
Woody Vine Stratum (Plot size: <u>30'</u>)			
1. <u>Toxicodendron radicans</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Celastrus orbiculatus</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
15 = Total Cover			
50% of total cover: <u>7.5</u>		20% of total cover: <u>3</u>	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x1= _____
FACW species _____	x2= _____
FAC species _____	x3= _____
FACU species _____	x4= _____
UPL species _____	x5= _____
Column Totals: _____ (A)	_____ (B)
Prevalence Index = B/A = _____	

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is > 50%

____ 3 - Prevalence Index is ≤ 3.0¹

____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET D, BRBR-
WET22, F-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/3	95	10YR 6/8	5	C	M	Loam	
2-8+	10YR 5/8	90	10YR 7/1	10	D	M	Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils ³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T, U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/8/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET G-SP
 Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): Concave Slope (%): 0-1
 Subregion (LRR or MLRA): MLRA 148 Lat: 39.398071 Long: -76.4289 Datum: NAD 83
 Soil Map Unit Name: CaC - Chillum silt loam, 0 to 5 percent slopes NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Seep wetland, flows into WUS L, Very disturbed by ATV tracks.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Mari Deposits (B15) (LLR U) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)(LRR T, U)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>1-4</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0-12</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET G-SP

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. <u><i>Acer rubrum</i></u>	40	Yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC:	5 (A)
2. <u><i>Liquidambar styraciflua</i></u>	20	Yes	FAC	Total Number of Dominant Species Across All Strata:	5 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	100% (A/B)
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
			60 = Total Cover		
50% of total cover:			30	20% of total cover: 12	
Sapling/Shrub Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet:	
1. <u><i>Acer rubrum</i></u>	5	Yes	FAC	Total % Cover of:	Multiply by:
2. <u><i>Liquidambar styraciflua</i></u>	2	No	FAC	OBL species _____	x1= _____
3. _____	_____	_____	_____	FACW species _____	x2= _____
4. _____	_____	_____	_____	FAC species _____	x3= _____
5. _____	_____	_____	_____	FACU species _____	x4= _____
6. _____	_____	_____	_____	UPL species _____	x5= _____
7. _____	_____	_____	_____	Column Totals: _____ (A)	_____ (B)
8. _____	_____	_____	_____	Prevalence Index = B/A = _____	
			7 = Total Cover		
50% of total cover:			3.5	20% of total cover: 1.4	
Herb Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:	
1. <u><i>Leersia virginica</i></u>	70	Yes	FACW	_____ 1 - Rapid Test for Hydrophytic Vegetation	
2. <u><i>Scirpus atrovirens</i></u>	2	No	OBL	<u>X</u> 2 - Dominance Test is > 50%	
3. <u><i>Toxicodendron radicans</i></u>	5	No	FAC	_____ 3 - Prevalence Index is ≤ 3.0 ¹	
4. <u><i>Rosa multiflora</i></u>	5	No	FACU	_____ Problematic Hydrophytic Vegetation ¹	(Explain)
5. <u><i>Parthenocissus quinquefolia</i></u>	5	No	FACU	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
6. <u><i>Microstegium vimineum</i></u>	5	No	FAC	Definitions of Four Vegetation Strata:	
7. _____	_____	_____	_____	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	
8. _____	_____	_____	_____	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.	
9. _____	_____	_____	_____	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
10. _____	_____	_____	_____	Woody vine – All woody vines greater than 3.28 ft in height.	
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
			92 = Total Cover		
50% of total cover:			46	20% of total cover: 18.4	
Woody Vine Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?	
1. <u><i>Toxicodendron radicans</i></u>	5	Yes	FAC	Yes	<input checked="" type="checkbox"/>
2. _____	_____	_____	_____	No	<input type="checkbox"/>
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
			5 = Total Cover		
50% of total cover:			2.5	20% of total cover: 1	

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET G-SP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 5/2	90	10YR 4/6	10	C	M	Sandy Clay	
6-12+	10YR 5/4	60	10YR 5/8	40	C	M	Sandy Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LLR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils ³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T, U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/8/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET H-SP
 Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Toe of Slope Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): MLRA 148 Lat: 39.3999 Long: -76.4272 Datum: NAD 83
 Soil Map Unit Name: BeB - Beltsville silt loam, 2 to 5 percent slopes NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area Within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					
Most of wetland is located at toe of road embankment, has been recently mowed.					

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Mari Deposits (B15) (LLR U) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations:	
Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>1</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>10</u> (includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET H-SP

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
				Dominance Test Worksheet:
				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
				Prevalence Index Worksheet:
				Total % Cover of: _____ Multiply by: _____
				OBL species _____ x1= _____
				FACW species _____ x2= _____
				FAC species _____ x3= _____
				FACU species _____ x4= _____
				UPL species _____ x5= _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
				Hydrophytic Vegetation Indicators:
				_____ 1 - Rapid Test for Hydrophytic Vegetation
				<u>X</u> 2 - Dominance Test is > 50%
				_____ 3 - Prevalence Index is ≤ 3.0 ¹
				_____ Problematic Hydrophytic Vegetation ¹ (Explain)
				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				Definitions of Four Vegetation Strata:
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.
				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
				Woody vine – All woody vines greater than 3.28 ft in height.
				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Herb Stratum (Plot size: <u>30'</u>)				
1. <u>Scirpus cyperinus</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>	
2. <u>Juncus effusus</u>	<u>40</u>	<u>Yes</u>	<u>OBL</u>	
3. <u>Liquidambar styraciflua</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	
4. <u>Lonicera japonica</u>	<u>2</u>	<u>No</u>	<u>FACU</u>	
5. <u>Rhus sp.</u>	<u>15</u>	<u>No</u>	<u>NA</u>	
6. <u>Platanus occidentalis</u>	<u>5</u>	<u>No</u>	<u>FACW</u>	
7. <u>Acer rubrum</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
				<u>92</u> = Total Cover
				50% of total cover: <u>46</u> 20% of total cover: <u>18.4</u>
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				_____ = Total Cover
				50% of total cover: _____ 20% of total cover: _____
Remarks: (If observed, list morphological adaptations below).				

SOIL

Sampling Point: WET H-SP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	2.5Y 5/2	90	10YR 5/6	10	C	M	Sandy Clay	
6-12+	2.5Y 6/3	60	10YR 5/6	40	C	M	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LLR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T,U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils ³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S,T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T,U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/8/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET G, H-UPL
 Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 0-2
 Subregion (LRR or MLRA): MLRA 148 Lat: 39.398071 Long: -76.428905 Datum: NAD 83
 Soil Map Unit Name: CaB - Chillum silt loam 0 to 5 percent slopes NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)(LRR T, U)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET G, H-UPL

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Liriodendron tulipifera</u>	<u>40</u>	Yes	FACU	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>71%</u> (A/B)
2. <u>Acer rubrum</u>	<u>20</u>	Yes	FAC	
3. <u>Liquidambar styraciflua</u>	<u>20</u>	Yes	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>80</u> = Total Cover 50% of total cover: <u>40</u> 20% of total cover: <u>16</u>				Prevalence Index Worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x1= _____ FACW species _____ x2= _____ FAC species _____ x3= _____ FACU species _____ x4= _____ UPL species _____ x5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>30'</u>)				
1. <u>Acer rubrum</u>	<u>10</u>	Yes	FAC	
2. <u>Viburnum dentatum</u>	<u>20</u>	Yes	FAC	
3. <u>Fraxinus pennsylvanica</u>	<u>5</u>	No	FACW	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>35</u> = Total Cover 50% of total cover: <u>17.5</u> 20% of total cover: <u>7</u>				Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is > 50% _____ 3 - Prevalence Index is ≤ 3.0 ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: <u>30'</u>)				
1. <u>Quercus alba</u>	<u>5</u>	No	FACU	
2. <u>Fraxinus pennsylvanica</u>	<u>5</u>	No	FACW	
3. <u>Viburnum dentatum</u>	<u>30</u>	Yes	FAC	
4. <u>Toxicodendron radicans</u>	<u>5</u>	No	FAC	
5. <u>Lonicera japonica</u>	<u>30</u>	Yes	FACU	
6. <u>Ilex opaca</u>	<u>5</u>	No	FAC	
7. <u>Celastrus orbiculatus</u>	<u>10</u>	No	FACU	
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
<u>90</u> = Total Cover 50% of total cover: <u>45</u> 20% of total cover: <u>18</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover 50% of total cover: _____ 20% of total cover: _____				
Remarks: (If observed, list morphological adaptations below). _____ _____ _____				

SOIL

Sampling Point: WET G, H-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10+	10YR 5/4	80	10YR 5/6	20	C	M	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils ³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LLR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T,U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S,T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T,U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	I-95 Section 100	Date:	6/17/2003
Applicant/Owner:	MdTA	County:	Baltimore
Investigator:	RB	State:	MD
Community ID:	GPJR-WET1	Transect ID:	A
		Plot ID:	WET

Do Normal Conditions exist on the site?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Is the site significantly disturbed (Atypical situation)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the area a potential Problem Area?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
If needed, explain on reverse		

VEGETATION

Dominant Plant Species				
	Common Name	Scientific Name	Stratum	Indicator
1.	red maple	<i>Acer rubrum</i>	T	FAC
2.	sweet gum	<i>Liquidambar styraciflua</i>	T	FAC
3.	black gum	<i>Nyssa sylvatica</i>	T	FAC
4.	arrow wood	<i>Viburnum recognitum</i>	S	FACW-
5.	greenbrier	<i>Smilax rotundifolia</i>	V	FAC
6.	jewelweed	<i>Impatiens capensis</i>	H	FACW
7.				
8.				
11.				
12.				
Percent of dominant species that are OBL, FACW or FAC (excluding FAC-)			100%	
Remarks:				

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Streams</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>2</u> (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p> <p>Remarks:</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
---	---

Community ID: GPJR-WET1

Transect ID: A

Plot ID: WET

SOILS

Map Unit Name _____

(Series and Phase): Beltsville Silt Loam, 2-5 percent slopes (BtB)

Drainage Class: _____

Field Observations Confirm Mapped Type? Yes _____ No _____

Taxonomy (Subgroup): Typic Fragiuults

Depth (in)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Textures, Concretions, Structures, etc.
0-8		10 YR 4/3	10 YR 4/6	10%	
8+		10 YR 5/2	5 YR 4/4	20%	

Hydric Soil Indicators: Yes x No _____

(If yes, check them)

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Concretions |
| <input type="checkbox"/> Histic Epidon | <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Aquic Moisture Regime | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input checked="" type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Other (explain in remarks) |

Remarks: _____

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>x</u>	No _____	Is this Sampling Point Within a Wetland
Wetland Hydrology Present?	Yes <u>x</u>	No _____	
Hydric Soils Present?	Yes <u>x</u>	No _____	
			Yes <u>x</u> No _____

Remarks: _____

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/8/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET I-SP
 Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-1.5
 Subregion (LRR or MLRA): MLRA 148 Lat: 39.4003 Long: -76.4258 Datum: NAD 83
 Soil Map Unit Name: BeB - Beltsville silt loam, 2 to 5 percent slopes NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)(LRR T, U)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET I-SP

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Nyssa sylvatica</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>20</u> = Total Cover				Prevalence Index Worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x1= _____ FACW species _____ x2= _____ FAC species _____ x3= _____ FACU species _____ x4= _____ UPL species _____ x5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>10</u>		20% of total cover: <u>4</u>		
Sapling/Shrub Stratum (Plot size: <u>30'</u>)				
1. <u>Vaccinium corymbosum</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Acer rubrum</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	
3. <u>Nyssa sylvatica</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	
4. <u>Viburnum dentatum</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>35</u> = Total Cover				
50% of total cover: <u>17.5</u>		20% of total cover: <u>7</u>		
Herb Stratum (Plot size: <u>30'</u>)				
1. <u>Juncus effusus</u>	<u>5</u>	<u>Yes</u>	<u>OBL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>5</u> = Total Cover				
50% of total cover: <u>2.5</u>		20% of total cover: <u>1</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is > 50%

_____ 3 - Prevalence Index is ≤ 3.0¹

_____ Problematic Hydrophytic Vegetation¹
(Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET I-SP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/1	95	10YR 3/6	5	C	M	Clay Loam	
4-10	2.5Y 6/3	70	10YR 6/8	30	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LLR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T,U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils ³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S,T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T,U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/9/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET I-UPL
 Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Plateau Local relief (concave, convex, none): Flat Slope (%): 1
 Subregion (LRR or MLRA): MLRA 148 Lat: 39.400297 Long: -76.425893 Datum: NAD 83
 Soil Map Unit Name: OtA - Othello silt loams, 0 to 2 percent slopes NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks:			

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)(LRR T, U)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET I-UPL

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer rubrum</u>	80	Yes	FAC	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>10</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>70%</u> (A/B)
2. <u>Liquidambar styraciflua</u>	5	No	FAC	
3. <u>Prunus serotina</u>	5	No	FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover 50% of total cover: <u>45</u> 20% of total cover: <u>18</u>				Prevalence Index Worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x1= _____ FACW species _____ x2= _____ FAC species _____ x3= _____ FACU species _____ x4= _____ UPL species _____ x5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>30'</u>)				
1. <u>Acer rubrum</u>	10	Yes	FAC	
2. <u>Vaccinium corymbosum</u>	5	No	FACW	
3. <u>Viburnum dentatum</u>	10	Yes	FAC	
4. <u>Ilex opaca</u>	5	No	FAC	
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover 50% of total cover: <u>15</u> 20% of total cover: <u>6</u>				Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is > 50% _____ 3 - Prevalence Index is ≤ 3.0 ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: <u>30'</u>)				
1. <u>Viburnum dentatum</u>	5	Yes	FAC	
2. <u>Lonicera japonica</u>	5	Yes	FACU	
3. <u>Rosa multiflora</u>	5	Yes	FACU	
4. <u>Parthenocissus quinquefolia</u>	5	Yes	FACU	
5. <u>Microstegium vimineum</u>	10	Yes	FAC	
6. <u>Leersia virginica</u>	10	Yes	FACW	
7. <u>Toxicodendron radicans</u>	5	Yes	FAC	
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover 50% of total cover: <u>22.5</u> 20% of total cover: <u>9</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover 50% of total cover: _____ 20% of total cover: _____				
Remarks: (If observed, list morphological adaptations below). 				

SOIL

Sampling Point: WET I-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 4/4	95	10YR 4/6	5	C	M	Sandy Clay	
2-12	10YR 7/6	90	10YR 5/8	5	C	M	Sandy Clay	
			10YR 6/2	5	D	M	Sandy Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LLR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T,U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils ³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S,T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T,U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/9/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET J-SP
 Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Hillslope Depression Local relief (concave, convex, none): Concave Slope (%): 0-2
 Subregion (LRR or MLRA): MLRA 148 Lat: 39.4036 Long: -76.4215 Datum: NAD 83
 Soil Map Unit Name: BeB - Beltsville silt loam, 2 to 5 percent slopes NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area Within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					
WET J and neighboring wetland GPJR-WET1 have both been impacted by construction activities.					

HYDROLOGY

Wetland Hydrology Indicators:			<u>Secondary Indicators (minimum of two required)</u>		
Primary Indicators (minimum of one is required; check all that apply)			<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Thin Muck Surface (C7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Other (Explain in Remarks)		
Field Observations:			Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>1-2</u>			
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____			
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>6</u>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					
Culvert outfall from stormwater management facility likely supplying hydrology					

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET J-SP

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer rubrum</u>	<u>60</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Liquidambar styraciflua</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
<u>80</u> = Total Cover			
50% of total cover: <u>40</u> 20% of total cover: <u>16</u>			

Sapling/Shrub Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer rubrum</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Liquidambar styraciflua</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Fraxinus pennsylvanica</u>	<u>5</u>	<u>No</u>	<u>FACW</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
<u>30</u> = Total Cover			
50% of total cover: <u>15</u> 20% of total cover: <u>6</u>			

Herb Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Arisaema triphyllum</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>
2. <u>Boehmeria cylindrica</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Toxicodendron radicans</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Scirpus atrovirens</u>	<u>5</u>	<u>Yes</u>	<u>OBL</u>
5. <u>Microstegium vimineum</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
6. <u>Leersia virginica</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
<u>40</u> = Total Cover			
50% of total cover: <u>20</u> 20% of total cover: <u>8</u>			

Woody Vine Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Toxicodendron radicans</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
<u>5</u> = Total Cover			
50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species _____ x1= _____

FACW species _____ x2= _____

FAC species _____ x3= _____

FACU species _____ x4= _____

UPL species _____ x5= _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

- Hydrophytic Vegetation Indicators:**
- _____ 1 - Rapid Test for Hydrophytic Vegetation
 - X 2 - Dominance Test is > 50%
 - _____ 3 - Prevalence Index is ≤ 3.0¹
 - _____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET J-SP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 4/2	95	10YR 5/6	5	C	M	Clay	
2-10	2.5YR 6/2	70	10YR 5/6	20	C	M	Clay	
			10YR 5/1	10	D	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S,T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T,U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Saturated 6" below the surface.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/9/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET K-SP
 Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): MLRA 148 Lat: 39.406 Long: -76.419 Datum: NAD 83
 Soil Map Unit Name: CaC - Chillum silt loam, 5 to 10 percent slopes NWI classification: PUB/PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Mari Deposits (B15) (LLR U) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)(LRR T, U)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>4-5</u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>Surface</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Likely a vernal pool. Likely fed from rainfall and uphill runoff.	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET K-SP

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
		<u> </u> = Total Cover		
		50% of total cover: <u> </u>	20% of total cover: <u> </u>	
Sapling/Shrub Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Liquidambar styraciflua</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2.				
3.				
4.				
5.				
6.				
7.				
8.				
		<u>10</u> = Total Cover		
		50% of total cover: <u>5</u>	20% of total cover: <u>2</u>	
Herb Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Lycopus americanus</u>	<u>2</u>	<u>No</u>	<u>OBL</u>
2.	<u>Microstegium vimineum</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
3.	<u>Leersia virginica</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>
4.	<u>Liquidambar styraciflua</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
5.	<u>Persicaria amphibia</u>	<u>2</u>	<u>No</u>	<u>OBL</u>
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		<u>29</u> = Total Cover		
		50% of total cover: <u>14.5</u>	20% of total cover: <u>5.8</u>	
Woody Vine Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
		<u> </u> = Total Cover		
		50% of total cover: <u> </u>	20% of total cover: <u> </u>	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of: Multiply by:

OBL species x1=

FACW species x2=

FAC species x3=

FACU species x4=

UPL species x5=

Column Totals: (A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is > 50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET K-SP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/2	95	10YR 5/6	5	C	M	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LLR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils ³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T, U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: Gravel
 Depth (inches): 4

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/9/17
 Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET J, K-UPL
 Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-1.5
 Subregion (LRR or MLRA): MLRA 148 Lat: 39.405 Long: -76.42 Datum: NAD 83
 Soil Map Unit Name: CaC - Chillum silt loam 0 to 5 percent slopes NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area Within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)(LRR T, U)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET J, K-UPL

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer rubrum</u>	10	No	FAC	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>9</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)
2. <u>Liquidambar styraciflua</u>	30	Yes	FAC	
3. <u>Quercus alba</u>	5	No	FACU	
4. <u>Quercus falcata</u>	30	Yes	FACU	
5. <u>Liriodendron tulipifera</u>	5	No	FACU	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
80 = Total Cover				
50% of total cover: <u>40</u>		20% of total cover: <u>16</u>		
Sapling/Shrub Stratum (Plot size: <u>30'</u>)				Prevalence Index Worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x1= _____ FACW species _____ x2= _____ FAC species _____ x3= _____ FACU species _____ x4= _____ UPL species _____ x5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Quercus alba</u>	10	Yes	FACU	
2. <u>Liquidambar styraciflua</u>	5	Yes	FAC	
3. <u>Quercus phellos</u>	5	Yes	FACW	
4. <u>Fagus grandifolia</u>	5	Yes	FACU	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
25 = Total Cover				
50% of total cover: <u>12.5</u>		20% of total cover: <u>5</u>		
Herb Stratum (Plot size: <u>30'</u>)				Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is > 50% _____ 3 - Prevalence Index is ≤ 3.0 ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Quercus alba</u>	5	Yes	FACU	
2. <u>Quercus falcata</u>	5	Yes	FACU	
3. <u>Prunus serotina</u>	5	Yes	FACU	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
15 = Total Cover				
50% of total cover: <u>7.5</u>		20% of total cover: <u>3</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WET J, K-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/4	97	10YR 7/6	3	C	M	Sandy Clay	
3-12	10YR 5/8	80	5YR 5/8	20	C	M	Sandy Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LLR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T,U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils ³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S,T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LRR T,U)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, Unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

**DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)**

Project/Site:	<u>I-95 Section 100</u>	Date:	<u>6/20/2003</u>
Applicant/Owner:	<u>MdTA</u>	County:	<u>Baltimore</u>
Investigator:	<u>RB</u>	State:	<u>MD</u>
Community ID:	<u>BRIS-WET3</u>	Transect ID:	<u>A</u>
		Plot ID:	<u>WET</u>

Do Normal Conditions exist on the site?	Yes <u> x </u>	No <u> </u>
Is the site significantly disturbed (Atypical situation)?	Yes <u> </u>	No <u> x </u>
Is the area a potential Problem Area?	Yes <u> </u>	No <u> x </u>
If needed, explain on reverse		

VEGETATION

Dominant Plant Species			
	<u>Common Name</u>	<u>Scientific Name</u>	<u>Stratum</u>
1.	narrow leaf cattail	<i>Typha angustifolia</i>	H
2.	black willow	<i>Salix nigra</i>	T
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
Percent of dominant species that are OBL, FACW or FAC (excluding FAC-)			<u>100%</u>

Remarks: On May 29, 2020, MDE and USACE determined that this resource is not jurisdictional because per MDTA, 2003 it was constructed as a stormwater management structure to treat I-95 runoff.

HYDROLOGY

Recorded Data (Describe in Remarks): <input type="checkbox"/> Streams <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>10</u> (in.) Depth to Free Water in Pit: <u> </u> (in.) Depth to Saturated Soil: <u> </u> (in.)	
Remarks: No signs of hydrology	

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	I-95 Section 100	Date:	6/20/2003
Applicant/Owner:	MdTA	County:	Baltimore
Investigator:	RB	State:	MD
Community ID:	BRIS-WET3	Transect ID:	A
		Plot ID:	UPL

Do Normal Conditions exist on the site?	Yes <u> x </u>	No <u> </u>
Is the site significantly disturbed (Atypical situation)?	Yes <u> </u>	No <u> x </u>
Is the area a potential Problem Area?	Yes <u> </u>	No <u> x </u>
If needed, explain on reverse		

VEGETATION

Dominant Plant Species				
	Common Name	Scientific Name	Stratum	Indicator
1.	crown vetch	<i>Coronilla varia</i>	H	UPL
2.	bird's foot trefoil	<i>Lotus corniculatus</i>	H	FACU-
3.	red clover	<i>Trifolium pratense</i>	H	FACU-
4.	dandeloin	<i>Taraxacum officinale</i>	H	UPL
5.	English plantain	<i>Plantago lanceolata</i>	H	UPL
6.	chickoree	<i>Chichorium intybus</i>	H	UPL
7.	common daisy	<i>Chrysanthemum leucanthemum</i>	H	UPL
8.				
10.				
11.				
12.				
Percent of dominant species that are OBL, FACW or FAC (excluding FAC-)			0%	
Remarks:				

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><u> </u> Streams</p> <p><u> </u> Aerial Photographs</p> <p><u> </u> Other</p> <p><u> </u> No Recorded Data Available</p> <p>Field Observations:</p> <p>Depth of Surface Water: <u> </u> (in.)</p> <p>Depth to Free Water in Pit: <u> </u> (in.)</p> <p>Depth to Saturated Soil: <u> </u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><u> </u> Inundated</p> <p><u> </u> Saturated in Upper 12 inches</p> <p><u> </u> Water Marks</p> <p><u> </u> Drift Lines</p> <p><u> </u> Sediment Deposits</p> <p><u> </u> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><u> </u> Oxidized Root Channels in Upper 12 inches</p> <p><u> </u> Water-Stained Leaves</p> <p><u> </u> Local Soil Survey Data</p> <p><u> </u> FAC-Neutral Test</p> <p><u> </u> Other (Explain in Remarks)</p>
Remarks: No signs of hydrology	

Community ID: BRIS-WET3

Transect ID: A

Plot ID: UPL

SOILS

Map Unit Name _____

(Series and Phase): Chillum-Neshaminy silt loams, 2-5 percent slopes, moderately eroded (CkB2) Drainage Class: _____

Field Observations Confirm Mapped Type? Yes _____ No _____

Taxonomy (Subgroup): Typic Hapludults

Depth (in)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Textures, Concretions, Structures, etc.
0-16		7.5 YR4/3			loam

Hydric Soil Indicators: Yes _____ No x
(If yes, check them)

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Concretions |
| <input type="checkbox"/> Histic Epidon | <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Aquic Moisture Regime | <input type="checkbox"/> Listed on Local Hydric Soils List |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Listed on National Hydric Soils List |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Other (explain in remarks) |

Remarks: _____

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes _____	No <u>x</u>	Is this Sampling Point Within a Wetland
Wetland Hydrology Present?	Yes _____	No <u>x</u>	
Hydric Soils Present?	Yes _____	No <u>x</u>	
			Yes _____ No <u>x</u>

Remarks: _____

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/16/17
 Applicant/Owner: MDTA State: MD Sampling Point: WMHG-WET10-W1
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 2
 Subregion (LRR or MLRA): 148 Lat: 39.387170418 Long: -76.4413198392 Datum: NAD83
 Soil Map Unit Name: Sassafras and Croom soils, 15 to 25 percent slopes NWI classification: PEM
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: WMHG-WET10-W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Sapling Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Shrub Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Herb Stratum (Plot Size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Phragmites australis</i>	100	Y	FACW
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
100 = Total Cover			
50% of total cover: 50		20% of total cover: 20	
Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x1= <u>0</u>
FACW species <u>100</u>	x2= <u>200</u>
FAC species <u>0</u>	x3= <u>0</u>
FACU species <u>0</u>	x4= <u>0</u>
UPL species <u>0</u>	x5= <u>0</u>
Column Totals: <u>100</u> (A)	<u>200</u> (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/19/17
 Applicant/Owner: MDTA State: MD Sampling Point: WMHG-WET10-U
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 4
 Subregion (LRR or MLRA): 148 Lat: 39.3877471412 Long: -76.4406060406 Datum: NAD83
 Soil Map Unit Name: Sassafras and Croom soils, 15 to 25 percent slopes NWI classification: UPL
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: **WMHG-WET10-U**

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>	
Sapling Stratum (Plot Size: <u>15'</u>)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>	
Shrub Stratum (Plot Size: <u>15'</u>)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>	
Herb Stratum (Plot Size: <u>5'</u>)			
1. <i>Plantago lanceolata</i>	33	Y	UPL
2. <i>Taraxacum officinale</i>	33	Y	FACU
3. <i>Cichorium intybus</i>	33	Y	FACU
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
99 = Total Cover			
50% of total cover: <u>49.5</u>		20% of total cover: <u>19.8</u>	
Woody Vine Stratum (Plot size: <u>30'</u>)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x1= <u>0</u>
FACW species <u>0</u>	x2= <u>0</u>
FAC species <u>0</u>	x3= <u>0</u>
FACU species <u>66</u>	x4= <u>264</u>
UPL species <u>33</u>	x5= <u>165</u>
Column Totals: <u>99</u> (A)	<u>429</u> (B)

Prevalence Index = B/A = 4.3

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤ 3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/13/17
 Applicant/Owner: MDTA State: MD Sampling Point: BRBR-WET5-W1
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.3940155688 Long: -76.4345613286 Datum: NAD83
 Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slopes NWI classification: PFO
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (minimum of two required)</u>
<u>Primary Indicators (minimum of one is required; check all that apply)</u>	<u>Surface Soil Cracks (B6)</u>
<u> </u> Surface Water (A1)	<u> </u> True Aquatic Plants (B14)
<u> </u> High Water Table (A2)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> Saturation (A3)	<u> </u> Hydrogen Sulfide Odor (C1)
<u> </u> Water Marks (B1)	<u> </u> <u>X</u> Drainage Patterns (B10)
<u> </u> Sediment Deposits (B2)	<u> </u> <u>X</u> Oxidized Rhizospheres on Living Roots (C3)
<u> </u> Drift Deposits (B3)	<u> </u> Moss Trim Lines (B16)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Presence of Reduced Iron (C4)
<u> </u> Iron Deposits (B5)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)
<u>X</u> Water-Stained Leaves (B9)	<u> </u> Crayfish Burrows (C8)
<u> </u> Aquatic Fauna (B13)	<u> </u> Thin Muck Surface (C7)
	<u> </u> Other (Explain in Remarks)
	<u> </u> Saturation Visible on Aerial Imagery (C9)
	<u> </u> Stunted or Stressed Plants (D1)
	<u> </u> <u>X</u> Geomorphic Position (D2)
	<u> </u> Shallow Aquitard (D3)
	<u> </u> Microtopographic Relief (D4)
	<u> </u> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: BRBR-WET5-W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Acer rubrum</i>	50	Y	FAC
2. <i>Quercus palustris</i>	20	Y	FACW
3. <i>Quercus phellos</i>	10	N	FAC
4. <i>Nyssa sylvatica</i>	10	N	FAC
5. _____	_____	_____	_____
6. _____	_____	_____	_____
90 = Total Cover			
50% of total cover: 45		20% of total cover: 18	
Sapling Stratum (Plot Size: 15')			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Shrub Stratum (Plot Size: 15')			
1. <i>Lindera benzoin</i>	20	Y	FAC
2. <i>Viburnum dentatum</i>	15	Y	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
35 = Total Cover			
50% of total cover: 17.5		20% of total cover: 7	
Herb Stratum (Plot Size: 5')			
1. <i>Carex intumescens</i>	10	Y	FACW
2. <i>Juncus effusus</i>	10	Y	FACW
3. <i>Microstegium vimineum</i>	5	Y	FAC
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
25 = Total Cover			
50% of total cover: 12.5		20% of total cover: 5	
Woody Vine Stratum (Plot size: 30')			
1. <i>Toxicodendron radicans</i>	10	Y	FAC
2. <i>Smilax rotundifolia</i>	10	Y	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
20 = Total Cover			
50% of total cover: 10		20% of total cover: 4	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x1= <u>0</u>
FACW species <u>40</u>	x2= <u>80</u>
FAC species <u>130</u>	x3= <u>390</u>
FACU species <u>0</u>	x4= <u>0</u>
UPL species <u>0</u>	x5= <u>0</u>
Column Totals: <u>170</u> (A)	<u>470</u> (B)

Prevalence Index = B/A = 2.8

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤ 3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: BRBR-WET5-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 4/2	90	2.5 YR 4/6	10	C	M	Sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (**LRR N**)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- Thin Dark Surface (S9)(**MLRA 147, 148**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- Umbric Surface (F13)(**MLRA 136, 122**)
- Piedmont Floodplain Soils (F19)(**MLRA 148**)
- Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)(**MLRA 147**)
- Coast Prarie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soils Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/13/17
 Applicant/Owner: MDTA State: MD Sampling Point: BRBR-WET5-W2
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.3940155688 Long: -76.4345613286 Datum: NAD83
 Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slopes NWI classification: PEM
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks: Soil and vegetation has been disturbed within the last 5 years. Area was forested, but was cleared for roadway improvements. Portion of wetland is a constructed drainage ditch that conveys runoff to BRBR-WUS11.

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
<u> </u> Surface Water (A1)	<u> </u> Surface Soil Cracks (B6)
<u> </u> High Water Table (A2)	<u> </u> True Aquatic Plants (B14)
<u> </u> Saturation (A3)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> Water Marks (B1)	<u> </u> Hydrogen Sulfide Odor (C1)
<u> </u> Sediment Deposits (B2)	<u> </u> Oxidized Rhizospheres on Living Roots (C3)
<u> </u> Drift Deposits (B3)	<u> </u> Presence of Reduced Iron (C4)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)
<u> </u> Iron Deposits (B5)	<u> </u> Thin Muck Surface (C7)
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Other (Explain in Remarks)
<u> </u> Water-Stained Leaves (B9)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Aquatic Fauna (B13)	<u> </u> Crayfish Burrows (C8)
	<u> </u> Saturation Visible on Aerial Imagery (C9)
	<u> </u> Stunted or Stressed Plants (D1)
	<u> </u> Geomorphic Position (D2)
	<u> </u> Shallow Aquitard (D3)
	<u> </u> Microtopographic Relief (D4)
	<u> </u> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u>	
Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u>	
Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: BRBR-WET5-W2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Sapling Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Shrub Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Herb Stratum (Plot Size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Carex intumescens</i>	10	Y	FACW
2. <i>Juncus effusus</i>	10	Y	FACW
3. <i>Microstegium vimineum</i>	5	Y	FAC
4. <i>Ludwigia alternifolia</i>	15	Y	OBL
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
40 = Total Cover			
50% of total cover: 20		20% of total cover: 8	
Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Toxicodendron radicans</i>	10	Y	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
10 = Total Cover			
50% of total cover: 5		20% of total cover: 2	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>15</u>	x1= <u>15</u>
FACW species <u>20</u>	x2= <u>40</u>
FAC species <u>15</u>	x3= <u>45</u>
FACU species <u>0</u>	x4= <u>0</u>
UPL species <u>0</u>	x5= <u>0</u>
Column Totals: <u>50</u> (A)	<u>100</u> (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/9/17
 Applicant/Owner: MDTA State: MD Sampling Point: BRBR-WET5-U
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.3946320805 Long: -76.434304405 Datum: NAD83
 Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slopes NWI classification: UPL
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: BRBR-WET5-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Quercus alba</i>	40	Y	FACU
2. <i>Liquidambar styraciflua</i>	30	Y	FAC
3. _____			
4. _____			
5. _____			
6. _____			
70 = Total Cover			
50% of total cover: 35		20% of total cover: 14	
Sapling Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Shrub Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Acer rubrum</i>	25	Y	FAC
2. <i>Quercus phellos</i>	15	Y	FAC
3. <i>Viburnum recognitum</i>	15	Y	FAC
4. _____			
5. _____			
6. _____			
55 = Total Cover			
50% of total cover: 27.5		20% of total cover: 11	
Herb Stratum (Plot Size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Podophyllum peltatum</i>	20	Y	FACU
2. <i>Trillium sp.</i>	10	N	N/A
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
30 = Total Cover			
50% of total cover: 15		20% of total cover: 6	
Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Lonicera japonica</i>	5	Y	FACU
2. <i>Parthenocissus quinquefolia</i>	5	Y	FACU
3. _____			
4. _____			
5. _____			
10 = Total Cover			
50% of total cover: 5		20% of total cover: 2	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x1= <u>0</u>
FACW species <u>0</u>	x2= <u>0</u>
FAC species <u>85</u>	x3= <u>255</u>
FACU species <u>70</u>	x4= <u>280</u>
UPL species <u>0</u>	x5= <u>0</u>
Column Totals: <u>155</u> (A)	<u>535</u> (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/9/17
 Applicant/Owner: MDTA State: MD Sampling Point: BRBR-WET6-W1
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.3945437578 Long: -76.4339180941 Datum: NAD83
 Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slopes NWI classification: PEM
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: Wetland begins at the outfall of a stormwater management facility.	

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (minimum of two required)</u>
Primary Indicators (minimum of one is required; check all that apply)	<u> </u> Surface Soil Cracks (B6)
<u> </u> Surface Water (A1)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> High Water Table (A2)	<u>X</u> Drainage Patterns (B10)
<u>X</u> Saturation (A3)	<u> </u> Moss Trim Lines (B16)
<u> </u> Water Marks (B1)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Sediment Deposits (B2)	<u> </u> Crayfish Burrows (C8)
<u> </u> Drift Deposits (B3)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Stunted or Stressed Plants (D1)
<u> </u> Iron Deposits (B5)	<u> </u> Geomorphic Position (D2)
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Shallow Aquitard (D3)
<u> </u> Water-Stained Leaves (B9)	<u> </u> Microtopographic Relief (D4)
<u> </u> Aquatic Fauna (B13)	<u> </u> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u> 6 </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: BRBR-WET6-W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Sapling Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Shrub Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Herb Stratum (Plot Size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Typha latifolia</i>	85	Y	OBL
2. <i>Juncus effusus</i>	10	N	FACW
3. <i>Carex intumescens</i>	10	N	FACW
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
105 = Total Cover			
50% of total cover: 52.5		20% of total cover: 21	
Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Toxicodendron radicans</i>	5	Y	FAC
2. <i>Smilax rotundifolia</i>	5	Y	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
10 = Total Cover			
50% of total cover: 5		20% of total cover: 2	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Column Total:	Multiply by:	Result:
OBL species	85	x1=	85
FACW species	20	x2=	40
FAC species	10	x3=	30
FACU species	0	x4=	0
UPL species	0	x5=	0
Column Totals:	115 (A)		155 (B)

Prevalence Index = B/A = 1.3

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/9/17
 Applicant/Owner: MDTA State: MD Sampling Point: BRBR-WET6-U
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.39454376 Long: -76.43391809 Datum: NAD83
 Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slopes NWI classification: UPL
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: BRBR-WET6-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Acer rubrum</i>	40	Y	FAC
2. <i>Quercus alba</i>	30	Y	FACU
3. <i>Liquidambar styraciflua</i>	20	Y	FAC
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
90 = Total Cover			
50% of total cover: 45		20% of total cover: 18	
Sapling Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Shrub Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Acer rubrum</i>	15	Y	FAC
2. <i>Quercus phellos</i>	10	Y	FAC
3. <i>Viburnum recognitum</i>	5	N	FAC
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
30 = Total Cover			
50% of total cover: 15		20% of total cover: 6	
Herb Stratum (Plot Size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Trillium sp.</i>	5	N	N/A
2. <i>Podophyllum peltatum</i>	5	Y	FACU
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
10 = Total Cover			
50% of total cover: 5		20% of total cover: 2	
Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Lonicera japonica</i>	10	Y	FACU
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
10 = Total Cover			
50% of total cover: 5		20% of total cover: 2	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x1= <u>0</u>
FACW species <u>0</u>	x2= <u>0</u>
FAC species <u>90</u>	x3= <u>270</u>
FACU species <u>45</u>	x4= <u>180</u>
UPL species <u>0</u>	x5= <u>0</u>
Column Totals: <u>135</u> (A)	<u>450</u> (B)

Prevalence Index = B/A = 3.3

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/8/17
 Applicant/Owner: MDTA State: MD Sampling Point: BRBR-WET98-W1
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.3980185946 Long: -76.430736785 Datum: NAD83
 Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slopes, stony NWI classification: PFO
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: 	

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (minimum of two required)</u>
<u>Primary Indicators (minimum of one is required; check all that apply)</u>	<u>Surface Soil Cracks (B6)</u>
<u> </u> Surface Water (A1)	<u> </u> True Aquatic Plants (B14)
<u> </u> High Water Table (A2)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> Saturation (A3)	<u> </u> Hydrogen Sulfide Odor (C1)
<u> </u> Water Marks (B1)	<u> </u> <u>X</u> Drainage Patterns (B10)
<u> </u> Sediment Deposits (B2)	<u> </u> <u>X</u> Oxidized Rhizospheres on Living Roots (C3)
<u> </u> Drift Deposits (B3)	<u> </u> Moss Trim Lines (B16)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Presence of Reduced Iron (C4)
<u> </u> Iron Deposits (B5)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)
<u>X</u> Water-Stained Leaves (B9)	<u> </u> Crayfish Burrows (C8)
<u> </u> Aquatic Fauna (B13)	<u> </u> Thin Muck Surface (C7)
	<u> </u> Other (Explain in Remarks)
	<u> </u> Saturation Visible on Aerial Imagery (C9)
	<u> </u> Stunted or Stressed Plants (D1)
	<u> </u> <u>X</u> Geomorphic Position (D2)
	<u> </u> Shallow Aquitard (D3)
	<u> </u> Microtopographic Relief (D4)
	<u> </u> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Hydrology is from a SWM pond outside of right-of-way that may be leaking.

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: BRBR-WET98-W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Acer rubrum</i>	50	Y	FAC
2. <i>Quercus palustris</i>	20	Y	FACW
3. <i>Nyssa sylvatica</i>	20	Y	FAC
4.			
5.			
6.			
90 = Total Cover			
50% of total cover: 45		20% of total cover: 18	
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Shrub Stratum (Plot Size: 15')			
1. <i>Lindera benzoin</i>	20	Y	FAC
2. <i>Viburnum dentatum</i>	15	Y	FAC
3.			
4.			
5.			
6.			
35 = Total Cover			
50% of total cover: 17.5		20% of total cover: 7	
Herb Stratum (Plot Size: 5')			
1. <i>Microstegium vimineum</i>	15	Y	FAC
2. <i>Juncus effusus</i>	15	Y	FACW
3. <i>Carex intumescens</i>	10	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
40 = Total Cover			
50% of total cover: 20		20% of total cover: 8	
Woody Vine Stratum (Plot size: 30')			
1. <i>Toxicodendron radicans</i>	10	Y	FAC
2. <i>Smilax rotundifolia</i>	5	Y	FAC
3.			
4.			
5.			
15 = Total Cover			
50% of total cover: 7.5		20% of total cover: 3	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 10 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x1= <u>0</u>
FACW species <u>45</u>	x2= <u>90</u>
FAC species <u>135</u>	x3= <u>405</u>
FACU species <u>0</u>	x4= <u>0</u>
UPL species <u>0</u>	x5= <u>0</u>
Column Totals: <u>180</u> (A)	<u>495</u> (B)

Prevalence Index = B/A = 2.8

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/19/17
 Applicant/Owner: MDTA State: MD Sampling Point: BRBR-WET98-W2
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 2
 Subregion (LRR or MLRA): 148 Lat: 39.3975269059 Long: -76.4310972702 Datum: NAD83
 Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slopes, stony NWI classification: PEM
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: 	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Drainage pattern is a constructed vegetated drainage channel.

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: BRBR-WET98-W2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	0 = Total Cover		
50% of total cover: 0		20% of total cover: 0	
Sapling Stratum (Plot Size: 15')			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	0 = Total Cover		
50% of total cover: 0		20% of total cover: 0	
Shrub Stratum (Plot Size: 15')			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	0 = Total Cover		
50% of total cover: 0		20% of total cover: 0	
Herb Stratum (Plot Size: 5')			
1. <i>Impatiens capensis</i>	20	Y	FACW
2. <i>Typha latifolia</i>	15	Y	OBL
3. <i>Onoclea sensibilis</i>	10	Y	FACW
4. <i>Aster</i> sp.	5	N	N/A
5. <i>Poaceae</i> sp.	40	N	N/A
6. <i>Solidago</i> sp.	10	N	N/A
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	100 = Total Cover		
50% of total cover: 50		20% of total cover: 20	
Woody Vine Stratum (Plot size: 30')			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	0 = Total Cover		
50% of total cover: 0		20% of total cover: 0	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>15</u>	x1= <u>15</u>
FACW species <u>30</u>	x2= <u>60</u>
FAC species <u>0</u>	x3= <u>0</u>
FACU species <u>0</u>	x4= <u>0</u>
UPL species <u>0</u>	x5= <u>0</u>
Column Totals: <u>45</u> (A)	<u>75</u> (B)

Prevalence Index = B/A = 1.7

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
 Unknown species appear to be part of a seed mix used by MDOT for permanent stabilization.

SOIL

Sampling Point: BRBR-WET98-W2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/1	90	2.5YR 4/6	10	C	M	Sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (**LRR N**)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- Thin Dark Surface (S9)(**MLRA 147, 148**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- Umbric Surface (F13)(**MLRA 136, 122**)
- Piedmont Floodplain Soils (F19)(**MLRA 148**)
- Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)(**MLRA 147**)
- Coast Prarie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soils Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/9/17
 Applicant/Owner: MDTA State: MD Sampling Point: BRBR-WET98-U
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.3984559446 Long: -76.4305876049 Datum: NAD83
 Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slopes NWI classification: UPL
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (minimum of two required)</u>
Primary Indicators (minimum of one is required; check all that apply)	
<u> </u> Surface Water (A1)	<u> </u> Surface Soil Cracks (B6)
<u> </u> High Water Table (A2)	<u> </u> True Aquatic Plants (B14)
<u> </u> Saturation (A3)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> Water Marks (B1)	<u> </u> Hydrogen Sulfide Odor (C1)
<u> </u> Sediment Deposits (B2)	<u> </u> Drainage Patterns (B10)
<u> </u> Drift Deposits (B3)	<u> </u> Oxidized Rhizospheres on Living Roots (C3)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Presence of Reduced Iron (C4)
<u> </u> Iron Deposits (B5)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)
<u> </u> Water-Stained Leaves (B9)	<u> </u> Crayfish Burrows (C8)
<u> </u> Aquatic Fauna (B13)	<u> </u> Thin Muck Surface (C7)
	<u> </u> Saturation Visible on Aerial Imagery (C9)
	<u> </u> Other (Explain in Remarks)
	<u> </u> Stunted or Stressed Plants (D1)
	<u> </u> Geomorphic Position (D2)
	<u> </u> Shallow Aquitard (D3)
	<u> </u> Microtopographic Relief (D4)
	<u> </u> FAC-Neutral Test (D5)

Field Observations:	
Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: BRBR-WET98-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Acer rubrum</i>	30	Y	FAC
2. <i>Liriodendron tulipifera</i>	20	Y	FACU
3. <i>Quercus alba</i>	15	Y	FACU
4.			
5.			
6.			
65 = Total Cover			
50% of total cover: 32.5		20% of total cover: 13	
Sapling Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Shrub Stratum (Plot Size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Herb Stratum (Plot Size: 5')			
1. <i>Microstegium vimineum</i>	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
20 = Total Cover			
50% of total cover: 10		20% of total cover: 4	
Woody Vine Stratum (Plot size: 30')			
1. <i>Lonicera japonica</i>	3	Y	FACU
2. <i>Toxicodendron radicans</i>	3	Y	FAC
3. <i>Parthenocissus quinquefolia</i>	3	Y	FACU
4.			
5.			
9 = Total Cover			
50% of total cover: 4.5		20% of total cover: 1.8	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	0 x1= 0
FACW species	0 x2= 0
FAC species	53 x3= 159
FACU species	41 x4= 164
UPL species	0 x5= 0
Column Totals:	94 (A) 323 (B)

Prevalence Index = B/A = 3.4

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤ 3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/19/17
 Applicant/Owner: MDTA State: MD Sampling Point: BRBR-WET99-W1
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.3987979139 Long: -76.4306613801 Datum: NAD83
 Soil Map Unit Name: Issue silt loam, occasionally flooded NWI classification: PEM
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (minimum of two required)</u>
<u>Primary Indicators (minimum of one is required; check all that apply)</u>	<u>Surface Soil Cracks (B6)</u>
<u> </u> Surface Water (A1)	<u> </u> True Aquatic Plants (B14)
<u> </u> High Water Table (A2)	<u> </u> Hydrogen Sulfide Odor (C1)
<u> </u> Saturation (A3)	<u> </u> Oxidized Rhizospheres on Living Roots (C3)
<u> </u> Water Marks (B1)	<u> </u> Presence of Reduced Iron (C4)
<u> </u> Sediment Deposits (B2)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)
<u> </u> Drift Deposits (B3)	<u> </u> Thin Muck Surface (C7)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Other (Explain in Remarks)
<u> </u> Iron Deposits (B5)	<u> </u> Surface Soil Cracks (B6)
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> Water-Stained Leaves (B9)	<u> </u> Drainage Patterns (B10)
<u> </u> Aquatic Fauna (B13)	<u> </u> Moss Trim Lines (B16)
	<u> </u> Dry-Season Water Table (C2)
	<u> </u> Crayfish Burrows (C8)
	<u> </u> Saturation Visible on Aerial Imagery (C9)
	<u> </u> Stunted or Stressed Plants (D1)
	<u> </u> Geomorphic Position (D2)
	<u> </u> Shallow Aquitard (D3)
	<u> </u> Microtopographic Relief (D4)
	<u> </u> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: BRBR-WET99-W1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Sapling Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Shrub Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Herb Stratum (Plot Size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Carex intumescens</i>	10	Y	FACW
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
10 = Total Cover			
50% of total cover: 5		20% of total cover: 2	
Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x1= <u>0</u>
FACW species <u>10</u>	x2= <u>20</u>
FAC species <u>0</u>	x3= <u>0</u>
FACU species <u>0</u>	x4= <u>0</u>
UPL species <u>0</u>	x5= <u>0</u>
Column Totals: <u>10</u> (A)	<u>20</u> (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
 Sparse vegetation. Canopy coverage by *Acer rubrum*.

SOIL

Sampling Point: BRBR-WET99-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	2.5Y 4/1	90	2.5YR 4/6	10	C	M	Clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (**LRR N**)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- Thin Dark Surface (S9)(**MLRA 147, 148**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- Umbric Surface (F13)(**MLRA 136, 122**)
- Piedmont Floodplain Soils (F19)(**MLRA 148**)
- Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)(**MLRA 147**)
- Coast Prarie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soils Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/9/17
 Applicant/Owner: MDTA State: MD Sampling Point: BRBR-WET99-U
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.39879791 Long: -76.43066138 Datum: NAD83
 Soil Map Unit Name: Issue silt loam, occasionally flooded NWI classification: UPL
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: BRBR-WET99-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Acer rubrum</i>	30	Y	FAC
2. <i>Liriodendron tulipifera</i>	20	Y	FACU
3. <i>Quercus alba</i>	15	Y	FACU
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
65 = Total Cover			
50% of total cover: 32.5		20% of total cover: 13	
Sapling Stratum (Plot Size: 15')			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Shrub Stratum (Plot Size: 15')			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
0 = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Herb Stratum (Plot Size: 5')			
1. <i>Microstegium vimineum</i>	20	Y	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
20 = Total Cover			
50% of total cover: 10		20% of total cover: 4	
Woody Vine Stratum (Plot size: 30')			
1. <i>Lonicera japonica</i>	3	Y	FACU
2. <i>Toxicodendron radicans</i>	3	Y	FAC
3. <i>Parthenocissus quinquefolia</i>	3	Y	FACU
4. _____	_____	_____	_____
5. _____	_____	_____	_____
9 = Total Cover			
50% of total cover: 4.5		20% of total cover: 1.8	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x1= <u>0</u>
FACW species <u>0</u>	x2= <u>0</u>
FAC species <u>53</u>	x3= <u>159</u>
FACU species <u>41</u>	x4= <u>164</u>
UPL species <u>0</u>	x5= <u>0</u>
Column Totals: <u>94</u> (A)	<u>323</u> (B)

Prevalence Index = B/A = 3.4

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤ 3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: BRBR-WET99-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/4	100					Loam	
6-16	10YR 4/4	100					Sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (**LRR N**)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- Thin Dark Surface (S9)(**MLRA 147, 148**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- Umbric Surface (F13)(**MLRA 136, 122**)
- Piedmont Floodplain Soils (F19)(**MLRA 148**)
- Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)(**MLRA 147**)
- Coast Prarie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soils Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/19/17
 Applicant/Owner: MDTA State: MD Sampling Point: GPJR-WET4-W1
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.4026019834 Long: -76.4252854548 Datum: NAD83
 Soil Map Unit Name: Elkton silt loam, occasionally flooded NWI classification: PFO
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	
Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u>	
Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u>	
Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u>	
(includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: GPJR-WET4-W1

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)				
1. <i>Quercus palustris</i>	50	Y	FACW	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>86</u> (A/B)
2. <i>Acer rubrum</i>	40	Y	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
	<u>90</u> = Total Cover			
50% of total cover: <u>45</u>		20% of total cover: <u>18</u>		
Sapling Stratum (Plot Size: <u>15'</u>)				
1. _____				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x1= <u>0</u> FACW species <u>60</u> x2= <u>120</u> FAC species <u>63</u> x3= <u>189</u> FACU species <u>3</u> x4= <u>12</u> UPL species <u>0</u> x5= <u>0</u> Column Totals: <u>126</u> (A) <u>321</u> (B)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
	<u>0</u> = Total Cover			
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Shrub Stratum (Plot Size: <u>15'</u>)				
1. <i>Vaccinium corymbosum</i>	10	Y	FACW	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)
2. <i>Viburnum dentatum</i>	10	Y	FAC	
3. <i>Lindera benzoin</i>	10	Y	FAC	
4. _____				
5. _____				
6. _____				
	<u>30</u> = Total Cover			
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>		
Herb Stratum (Plot Size: <u>5'</u>)				
1. <i>Lonicera japonica</i>	3	Y	FACU	¹ Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. Definitions of Vegetation Strata: Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine -- All woody vines, regardless of height.
2. <i>Toxicodendron radicans</i>	3	Y	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	<u>6</u> = Total Cover			
50% of total cover: <u>3</u>		20% of total cover: <u>1.2</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
	<u>0</u> = Total Cover			
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Remarks: (Include photo numbers here or on a separate sheet.)				

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/19/17
 Applicant/Owner: MDTA State: MD Sampling Point: GPJR-WET4-U
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.4025051783 Long: -76.4257846807 Datum: NAD83
 Soil Map Unit Name: Elkton silt loam, occasionally flooded NWI classification: UPL
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	
<u> </u> Surface Water (A1)	<u> </u> Surface Soil Cracks (B6)
<u> </u> High Water Table (A2)	<u> </u> True Aquatic Plants (B14)
<u> </u> Saturation (A3)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> Water Marks (B1)	<u> </u> Hydrogen Sulfide Odor (C1)
<u> </u> Sediment Deposits (B2)	<u> </u> Oxidized Rhizospheres on Living Roots (C3)
<u> </u> Drift Deposits (B3)	<u> </u> Presence of Reduced Iron (C4)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)
<u> </u> Iron Deposits (B5)	<u> </u> Thin Muck Surface (C7)
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Other (Explain in Remarks)
<u> </u> Water-Stained Leaves (B9)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Aquatic Fauna (B13)	<u> </u> Crayfish Burrows (C8)
	<u> </u> Saturation Visible on Aerial Imagery (C9)
	<u> </u> Stunted or Stressed Plants (D1)
	<u> </u> Geomorphic Position (D2)
	<u> </u> Shallow Aquitard (D3)
	<u> </u> Microtopographic Relief (D4)
	<u> </u> FAC-Neutral Test (D5)

Field Observations:	
Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: GPJR-WET4-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Sapling Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Shrub Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: 0		20% of total cover: 0	
Herb Stratum (Plot Size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Cichorium intybus</i>	30	Y	FACU
2. <i>Trifolium repens</i>	20	Y	FACU
3. <i>Leucanthemum vulgare</i>	20	Y	UPL
4. <i>Plantago lanceolata</i>	10	N	UPL
5. <i>Carex scoparia</i>	10	N	FACW
6. <i>Taraxacum officinale</i>	10	N	FACU
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: 50		20% of total cover: 20	
Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: 0		20% of total cover: 0	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x1= <u>0</u>
FACW species <u>10</u>	x2= <u>20</u>
FAC species <u>0</u>	x3= <u>0</u>
FACU species <u>60</u>	x4= <u>240</u>
UPL species <u>30</u>	x5= <u>150</u>
Column Totals: <u>100</u> (A)	<u>410</u> (B)

Prevalence Index = B/A = 4.1

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤ 3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/19/17
 Applicant/Owner: MDTA State: MD Sampling Point: WET95A-W1
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): minor hillslope Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.4049613229 Long: -76.422063951 Datum: NAD83
 Soil Map Unit Name: Chillum silt loam, 5 to 10 percent slopes NWI classification: PFO
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	
<u> </u> Surface Water (A1)	<u> </u> Surface Soil Cracks (B6)
<u>X</u> High Water Table (A2)	<u> </u> True Aquatic Plants (B14)
<u>X</u> Saturation (A3)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> Water Marks (B1)	<u>X</u> Drainage Patterns (B10)
<u> </u> Sediment Deposits (B2)	<u>X</u> Oxidized Rhizospheres on Living Roots (C3)
<u> </u> Drift Deposits (B3)	<u> </u> Presence of Reduced Iron (C4)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)
<u> </u> Iron Deposits (B5)	<u> </u> Thin Muck Surface (C7)
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Other (Explain in Remarks)
<u> </u> Water-Stained Leaves (B9)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Aquatic Fauna (B13)	<u> </u> Crayfish Burrows (C8)
	<u> </u> Saturation Visible on Aerial Imagery (C9)
	<u> </u> Stunted or Stressed Plants (D1)
	<u>X</u> Geomorphic Position (D2)
	<u> </u> Shallow Aquitard (D3)
	<u> </u> Microtopographic Relief (D4)
	<u> </u> FAC-Neutral Test (D5)

Field Observations:	
Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u>X</u> No <u> </u> Depth (inches): <u> 8</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u> 0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: WET95A-W1

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: <u>30'</u>)					
1. <i>Nyssa sylvatica</i>	30	Y	FAC	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>86</u> (A/B)	
2. <i>Acer rubrum</i>	30	Y	FAC		
3. <i>Quercus palustris</i>	10	N	FACW		
4. _____					
5. _____					
6. _____					
	<u>70</u> = Total Cover				
50% of total cover: <u>35</u>		20% of total cover: <u>14</u>			
Sapling Stratum (Plot Size: <u>15'</u>)					
1. _____				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x1= <u>0</u> FACW species <u>25</u> x2= <u>50</u> FAC species <u>210</u> x3= <u>630</u> FACU species <u>5</u> x4= <u>20</u> UPL species <u>0</u> x5= <u>0</u> Column Totals: <u>240</u> (A) <u>700</u> (B) Prevalence Index = B/A = <u>2.9</u>	
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
	<u>0</u> = Total Cover				
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>			
Shrub Stratum (Plot Size: <u>15'</u>)					
1. <i>Acer rubrum</i>	40	Y	FAC		
2. <i>Nyssa sylvatica</i>	10	Y	FAC		
3. <i>Liquidambar styraciflua</i>	5	N	FAC		
4. <i>Quercus palustris</i>	5	N	FACW		
5. _____					
6. _____					
	<u>60</u> = Total Cover				
50% of total cover: <u>30</u>		20% of total cover: <u>12</u>			
Herb Stratum (Plot Size: <u>5'</u>)					
1. <i>Microstegium vimineum</i>	90	Y	FAC		
2. <i>Juncus effusus</i>	5	N	FACW		
3. <i>Onoclea sensibilis</i>	5	N	FACW		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
	<u>100</u> = Total Cover				
50% of total cover: <u>50</u>		20% of total cover: <u>20</u>			
Woody Vine Stratum (Plot size: <u>30'</u>)					
1. <i>Toxicodendron radicans</i>	5	Y	FAC		
2. <i>Lonicera japonica</i>	5	Y	FACU		
3. _____					
4. _____					
5. _____					
	<u>10</u> = Total Cover				
50% of total cover: <u>5</u>		20% of total cover: <u>2</u>			
Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point:

WET95A-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	G1 5/N	90	2.5YR 4/6	10	D	M	Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (**LRR N**)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- Thin Dark Surface (S9)(**MLRA 147, 148**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- Umbric Surface (F13)(**MLRA 136, 122**)
- Piedmont Floodplain Soils (F19)(**MLRA 148**)
- Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)(**MLRA 147**)
- Coast Prarie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soils Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/19/17
 Applicant/Owner: MDTA State: MD Sampling Point: WET95A-U
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.4054616651 Long: -76.4214304374 Datum: NAD83
 Soil Map Unit Name: Chillum silt loam, 5 to 10 percent slopes NWI classification: UPL
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (minimum of two required)</u>
Primary Indicators (minimum of one is required; check all that apply)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: WET95A-U

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)				
1. <i>Acer rubrum</i>	25	Y	FAC	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
50% of total cover: <u>12.5</u>	<u>25</u> = Total Cover	20% of total cover: <u>5</u>		
Sapling Stratum (Plot Size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
50% of total cover: <u>0</u>	<u>0</u> = Total Cover	20% of total cover: <u>0</u>		
Shrub Stratum (Plot Size: <u>15'</u>)				
1. <i>Liquidambar styraciflua</i>	30	Y	FAC	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x1= <u>0</u> FACW species <u>0</u> x2= <u>0</u> FAC species <u>80</u> x3= <u>240</u> FACU species <u>35</u> x4= <u>140</u> UPL species <u>0</u> x5= <u>0</u> Column Totals: <u>115</u> (A) <u>380</u> (B) Prevalence Index = B/A = <u>3.3</u>
2. <i>Juniperus virginiana</i>	20	Y	FACU	
3. <i>Acer rubrum</i>	15	Y	FAC	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
50% of total cover: <u>32.5</u>	<u>65</u> = Total Cover	20% of total cover: <u>13</u>		
Herb Stratum (Plot Size: <u>5'</u>)				
1. <i>Rosa multiflora</i>	15	Y	FACU	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)
2. <i>Toxicodendron radicans</i>	10	Y	FAC	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% of total cover: <u>12.5</u>	<u>25</u> = Total Cover	20% of total cover: <u>5</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
50% of total cover: <u>0</u>	<u>0</u> = Total Cover	20% of total cover: <u>0</u>		
Remarks: (Include photo numbers here or on a separate sheet.)				

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/19/17
 Applicant/Owner: MDTA State: MD Sampling Point: WET96A-W1
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.4065861567 Long: -76.4199071212 Datum: NAD83
 Soil Map Unit Name: Chillum silt loam, 5 to 10 percent slopes NWI classification: PFO
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: Area may be old wetland that is drying up.	

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (minimum of two required)</u>
Primary Indicators (minimum of one is required; check all that apply)	<u>Surface Soil Cracks (B6)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: WET96A-W1

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)				
1. <i>Acer rubrum</i>	<u>60</u>	Y	FAC	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
50% of total cover: <u>30</u>	<u>60</u> = Total Cover	20% of total cover:	<u>12</u>	
Sapling Stratum (Plot Size: <u>15'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
50% of total cover: <u>0</u>	<u>0</u> = Total Cover	20% of total cover:	<u>0</u>	
Shrub Stratum (Plot Size: <u>15'</u>)				
1. <i>Viburnum dentatum</i>	<u>30</u>	Y	FAC	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x1= <u>0</u> FACW species <u>5</u> x2= <u>10</u> FAC species <u>135</u> x3= <u>405</u> FACU species <u>5</u> x4= <u>20</u> UPL species <u>0</u> x5= <u>0</u> Column Totals: <u>145</u> (A) <u>435</u> (B) Prevalence Index = B/A = <u>3.0</u>
2. <i>Lindera benzoin</i>	<u>30</u>	Y	FAC	
3. <i>Liquidambar styraciflua</i>	<u>10</u>	N	FAC	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
50% of total cover: <u>35</u>	<u>70</u> = Total Cover	20% of total cover:	<u>14</u>	
Herb Stratum (Plot Size: <u>5'</u>)				
1. <i>Juncus effusus</i>	<u>5</u>	Y	FACW	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)
2. <i>Rosa multiflora</i>	<u>5</u>	Y	FACU	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% of total cover: <u>5</u>	<u>10</u> = Total Cover	20% of total cover:	<u>2</u>	
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. <i>Smilax rotundifolia</i>	<u>5</u>	Y	FAC	Definitions of Vegetation Strata: Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine -- All woody vines, regardless of height.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
50% of total cover: <u>2.5</u>	<u>5</u> = Total Cover	20% of total cover:	<u>1</u>	
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: WET96A-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 4/2	97	2.5YR 4/6	3	C	M	Sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (**LRR N**)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- Thin Dark Surface (S9)(**MLRA 147, 148**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- Umbric Surface (F13)(**MLRA 136, 122**)
- Piedmont Floodplain Soils (F19)(**MLRA 148**)
- Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)(**MLRA 147**)
- Coast Prarie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soils Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension City/County: Baltimore Sampling Date: 12/19/17
 Applicant/Owner: MDTA State: MD Sampling Point: WET96A-U
 Investigator(s): SA, JM Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): 148 Lat: 39.4067368994 Long: -76.419728198 Datum: NAD83
 Soil Map Unit Name: Chillum silt loam, 5 to 10 percent slopes NWI classification: UPL
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) -- Use Scientific Names of plants.

Sampling Point: WET96A-U

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Acer rubrum</i>	40	Y	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
50% of total cover: 20		20% of total cover: 8	
_____ = Total Cover		_____	
Sapling Stratum (Plot Size: 15')			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
50% of total cover: 0		20% of total cover: 0	
_____ = Total Cover		_____	
Shrub Stratum (Plot Size: 15')			
1. <i>Juniperus virginiana</i>	20	Y	FACU
2. <i>Acer rubrum</i>	15	Y	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
50% of total cover: 17.5		20% of total cover: 7	
_____ = Total Cover		_____	
Herb Stratum (Plot Size: 5')			
1. <i>Rosa multiflora</i>	20	Y	FACU
2. <i>Smilax rotundifolia</i>	15	Y	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% of total cover: 17.5		20% of total cover: 7	
_____ = Total Cover		_____	
Woody Vine Stratum (Plot size: 30')			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% of total cover: 0		20% of total cover: 0	
_____ = Total Cover		_____	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x1= <u>0</u>
FACW species <u>0</u>	x2= <u>0</u>
FAC species <u>70</u>	x3= <u>210</u>
FACU species <u>40</u>	x4= <u>160</u>
UPL species <u>0</u>	x5= <u>0</u>
Column Totals: <u>110</u> (A)	<u>370</u> (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height.

Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb -- All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine -- All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point:

WET96A-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 5/3	100					Sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (**LRR N**)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)(**LRR N, MLRA 147, 148**)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Dark Surface (S8)(**MLRA 147, 148**)
- Thin Dark Surface (S9)(**MLRA 147, 148**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12)(**LRR N, MLRA 136**)
- Umbric Surface (F13)(**MLRA 136, 122**)
- Piedmont Floodplain Soils (F19)(**MLRA 148**)
- Red Parent Material (F21)(**MLRA 127, 147**)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)(**MLRA 147**)
- Coast Prarie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soils Present? Yes _____ No X

Remarks:

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** BRBR-WUS1

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: SW **Drains Into:** Bird River

Fed By: BRBR-WUS8, BRBR-WUS9, BRBR-WUS2, WUS T, WUS J, BRBR-WUS8, WUS R, WUS Q

Bank Height: 2-4' **Water Depth:** 0-4" **Width:** 8-10'

Channel Gradient (%): 2-3 **Bank Stability:** Moderate

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 20 % Riffle: 20 % Pool: 60

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input checked="" type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input checked="" type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
	Sediment deposition	<input checked="" type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Stream is a tributary to the Bird River, a TNW.

Other Comments: Previously delineated under the I-95 ETL Section 100 Permit.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS Q

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: E **Drains Into:** BRBR-WUS1

Fed By: BRBR-WET21 and upland sheet flow.

Bank Height: 1-3' **Water Depth:** 0" **Width:** 3'

Channel Gradient (%): 1-3 **Bank Stability:** Moderate

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Yes, flows into BRBR-WUS1, a tributary to the Bird River, a TNW.

Other Comments: _____

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS R

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: SE **Drains Into:** BRBR-WUS1

Fed By: Upland runoff

Bank Height: 1' **Water Depth:** 0" **Width:** 3'

Channel Gradient (%): 3 **Bank Stability:** Moderate

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM: Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Yes, flows into BRBR-WUS1, a tributary to the Bird River, a TNW.

Other Comments: Runoff channel connects to BRBR-WUS1.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** BRBR-WUS8

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: SE **Drains Into:** BRBR-WUS1

Fed By: BRBR-WUS11

Bank Height: 2-4' **Water Depth:** 2-4" **Width:** 8'

Channel Gradient (%): 1 **Bank Stability:** Poor to moderate

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 90 % Riffle: 0 % Pool: 10

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM: Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Yes, flows into BRBR-WUS1, a tributary to the Bird River, a TNW.

Other Comments: Previously delineated under I-95 ETL Section 100 permit.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS S

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: N **Drains Into:** BRBR-WUS8

Fed By: SW Outfall

Bank Height: 0-1' **Water Depth:** 1-2" **Width:** 6'

Channel Gradient (%): 0-1 **Bank Stability:** Moderate

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 50 % Riffle: 0 % Pool: 50

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM: Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
Shelving	<input type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
Water staining	<input checked="" type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Yes, flows to BRBR-WUS8, a tributary to the Bird River, a TNW.

Other Comments: Hydrology from unknown box structure (Unclear where water originates).

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** BRBR-WUS7

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: SW **Drains Into:** BRBR-WUS1

Fed By: A different section of BRBR-WUS1

Bank Height: 2-4' **Water Depth:** 2-8" **Width:** 6-18'

Channel Gradient (%): 1 **Bank Stability:** Moderate

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 60 % Riffle: 10 % Pool: 30

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input checked="" type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Yes, a tributary to the Bird River, a TNW.

Other Comments: Was previously delineated under the I-95 ETL Section 100 permit. BRBR-WUS7 and BRBR-WUS1 are different portions of the same stream; naming from Section 100 permit is being preserved.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS G

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: S **Drains Into:** BRBR-WUS7

Fed By: WET D and upland runoff

Bank Height: 3-12" **Water Depth:** 0" **Width:** 12-18"

Channel Gradient (%): 1-2% **Bank Stability:** Poor

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM: Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Continues outside of the Study Area to BRBR-WUS7, a tributary to the Bird River, a TNW.

Other Comments: WUS G is a small channel that is fed by a wetland to the north (WET D).

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS H

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: S **Drains Into:** BRBR-WUS7

Fed By: Upland runoff and WET D.

Bank Height: 6" **Water Depth:** 0" **Width:** 6-20'

Channel Gradient (%): 2 **Bank Stability:** Poor

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input checked="" type="checkbox"/>
	Sediment deposition	<input checked="" type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Flows outside of Study Area to BRBR-WUS7,
a tributary to the Bird River, a TNW.

Other Comments: Runs adjacent to WET D. WUS H is an erosional feature of the wetland.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS F

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: S **Drains Into:** WET D

Fed By: BRBR-WET22 and upland runoff

Bank Height: 12-16" **Water Depth:** 0" **Width:** 1'

Channel Gradient (%): 1-2 **Bank Stability:** Poor

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input checked="" type="checkbox"/>
	Shelving	<input type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Flows into WET D, which drains to a tributary to the Bird River, a TNW.

Other Comments: _____

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS T

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: NW **Drains Into:** BRBR-WUS1

Fed By: Upland and roadside runoff.

Bank Height: 2-4' **Water Depth:** 0" **Width:** 2'

Channel Gradient (%): 0-1 **Bank Stability:** Moderate

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Yes, flows to BRBR-WUS1, a tributary to the Gunpowder River, a TNW.

Other Comments: Adjacent to road (swale).

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** BRBR-WUS2

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: SW **Drains Into:** BRBR-WUS1

Fed By: Upland runoff

Bank Height: 6" **Water Depth:** 0" **Width:** 4-10'

Channel Gradient (%): 2 **Bank Stability:** Poor

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input checked="" type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Discharges into BRBR-WUS1, a tributary to the Bird River, a TNW.

Other Comments: Was previously delineated under the I-95 ETL Section 100 permit.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS J

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: SW **Drains Into:** BRBR-WUS1

Fed By: Originates at a cross-culvert under I-95. Also fed by roadside runoff.

Bank Height: 3-8' **Water Depth:** 0-2" **Width:** 3-4'

Channel Gradient (%): 2-3 **Bank Stability:** Poor

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 90 % Riffle: 0 % Pool: 10

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM: Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input checked="" type="checkbox"/>
Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
Shelving	<input type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
Vegetation matted down, bent, or absent	<input checked="" type="checkbox"/>	Sediment sorting	<input checked="" type="checkbox"/>
Leaf litter disturbed or washed away	<input checked="" type="checkbox"/>	Scour	<input type="checkbox"/>
Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Yes, flows into BRBR-WUS1, a tributary to the Bird River, a TNW.

Other Comments: Segment of stream (swale) that exists between WUS K and BRBR-WUS1.
Runs along I-95 adjacent to roadway.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS L

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: SW **Drains Into:** Continues outside of the Study Area

Fed By: WET G, groundwater, and precipitation

Bank Height: 4" **Water Depth:** 0" **Width:** 2'

Channel Gradient (%): 1 **Bank Stability:** Moderate

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input checked="" type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Likely connects to BRBR-WUS1, a tributary to the Bird River, a TNW.

Other Comments: Sparse channel of no vegetation.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS K

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: SW **Drains Into:** WUS J

Fed By: Runoff

Bank Height: 2-6' **Water Depth:** 0" **Width:** 1-3'

Channel Gradient (%): 3-4 **Bank Stability:** Poor

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM: Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input checked="" type="checkbox"/>
Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
Shelving	<input type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input checked="" type="checkbox"/>
Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Yes, flows to WUS J, a tributary to the Bird River, a TNW.

Other Comments: Steep channel north of culvert.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS M

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: NE **Drains Into:** GPJR-WUS2A

Fed By: Roadside runoff, precipitation

Bank Height: 1-3' **Water Depth:** 0" **Width:** 3'

Channel Gradient (%): 3 **Bank Stability:** Poor-moderate

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Flows into GPJR-WUS2A, a tributary to the Gunpowder River, a TNW.

Other Comments: Stream only flows during periods of precipitation.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** GPJR-WUS2A

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: NE **Drains Into:** GPJR-WUS1

Fed By: GPJR-WUS2B, WUS M, and roadside runoff

Bank Height: 3' **Water Depth:** 0" **Width:** 2'

Channel Gradient (%): 1 **Bank Stability:** Poor

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: A tributary to the Gunpowder River, a TNW.

Other Comments: GPJR-WUS2A is a roadside swale.

Previously delineated under the I-95 ETL Section 100 permit.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** GPJR-WUS2B

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: N **Drains Into:** GPJR-WUS2A

Fed By: BRBR-WET1

Bank Height: 12-18" **Water Depth:** 0" **Width:** 3-5'

Channel Gradient (%): 1-2 **Bank Stability:** Moderate

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 90 % Riffle: 0 % Pool: 10

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM: Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: GPJR-WUS2B drains to GPJR-WUS2A, a tributary to the Gunpowder River, a TNW.

Other Comments: Was previously delineated under the I-95 ETL Section 100 Permit as GPJR-WUS2.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** GPJR-WUS1, GPJR-WUS1A

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: N **Drains Into:** Culvert under I-95

Fed By: GPJR-WUS2A, WUS P, and roadside runoff

Bank Height: 2-4' **Water Depth:** 0" **Width:** 3-5'

Channel Gradient (%): 1-2 **Bank Stability:** Moderate

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
Veg Riprap Concrete Muck
Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Stream is a tributary to the Gunpowder River, a TNW.

Other Comments: The stream was originally delineated under the I-95 ETL Section 100 permit.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** GPJR-WUS1B

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: N **Drains Into:** GPJR-WUS1A

Fed By: Fed by GPJR-WET1

Bank Height: 1-2' **Water Depth:** 0" **Width:** 2-5'

Channel Gradient (%): 1-2 **Bank Stability:** Poor

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 90 % Riffle: 10 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM: Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Yes, a tributary to the Gunpowder River, a TNW.

Other Comments: Associated wetland no longer exists. The stream has been partially impacted by construction activities. Previously delineated under I-95 ETL Section 100 permit as part of GPJR-WUS1.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** GPJR-WUS3

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: S **Drains Into:** BRBR-WET1

Fed By: Upland runoff and GPJR-WUS10B

Bank Height: 10-18" **Water Depth:** 0" **Width:** 3'

Channel Gradient (%): 2-3 **Bank Stability:** Poor

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input checked="" type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input checked="" type="checkbox"/>	Sediment sorting	<input checked="" type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Flows into BRBR-WET1, which drains to a tributary to the Gunpowder River, a TNW.

Other Comments: Very channelized;
Previously delineated under I-95 ETL Section 100 permit.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** GPJR-WUS10B

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: W **Drains Into:** GPJR-WUS3

Fed By: E&S outfall (Under construction) and stormwater

Bank Height: 4" **Water Depth:** 0" **Width:** 5-11'

Channel Gradient (%): 2 **Bank Stability:** Poor

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Flows into GPJR-WUS3, a tributary to the Gunpowder River, a TNW.

Other Comments: Previously delineated under I-95 ETL Section 100 permit.
The stream has been partially impacted by construction activities.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS P

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: SW **Drains Into:** GPJR-WUS1

Fed By: Roadside runoff and WUS O

Bank Height: 2' **Water Depth:** 0" **Width:** 4'

Channel Gradient (%): 2 **Bank Stability:** Concrete

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM: Clear, natural line impressed on the bank	<input checked="" type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
Shelving	<input type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Flows to GPJR-WUS1, a tributary to the Gunpowder River, a TNW.

Other Comments: Currently being piped under a construction access. WUS P is intermittent downstream of WUS O.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS I

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: SW **Drains Into:** BRIS-WET3

Fed By: Runoff

Bank Height: 12-18" **Water Depth:** 0" **Width:** 1-2'

Channel Gradient (%): 2-3 **Bank Stability:** Poor

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 95 % Riffle: 5 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM:	Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
	Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
	Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
	Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
	Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
	Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
	Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Flows to BRIS-WET3, which is likely connected to BRBR-WET22 through groundwater, and ultimately drains to a tributary to the Bird River, a TNW.

Other Comments: On May 29, 2020, USACE determined that this resource is a non-jurisdictional roadside ditch.

Stream Datasheet

Project: I-95 ETL Northbound Extension **Date:** 8/21/19 **Stream ID:** WUS O

Staff: MM, AS **Flow Type:** Perennial Intermittent Ephemeral

Flow Direction: W **Drains Into:** WUS P

Fed By: Upland runoff and WET J, which has since been impacted by construction.

Bank Height: 6" **Water Depth:** 0" **Width:** 2-3'

Channel Gradient (%): 4 **Bank Stability:** Poor

Avg. Bank Slope: Vertical 2:1 3:1 4:1 or greater

Mesohabitat: % Run: 100 % Riffle: 0 % Pool: 0

Substrate: Cobble Gravel Sand Silt
 Veg Riprap Concrete Muck
 Bedrock

Channel Characteristics: Natural Artificial Man-altered

OHWM: Clear, natural line impressed on the bank	<input type="checkbox"/>	Presence of litter and debris	<input type="checkbox"/>
Changes in character of soil	<input type="checkbox"/>	Destruction of terrestrial veg.	<input type="checkbox"/>
Shelving	<input checked="" type="checkbox"/>	Presence of wrack line	<input type="checkbox"/>
Vegetation matted down, bent, or absent	<input type="checkbox"/>	Sediment sorting	<input type="checkbox"/>
Leaf litter disturbed or washed away	<input type="checkbox"/>	Scour	<input type="checkbox"/>
Sediment deposition	<input type="checkbox"/>	Multiple observed/predicted flow events	<input type="checkbox"/>
Water staining	<input type="checkbox"/>	Abrupt change in plant community	<input type="checkbox"/>

Photos? Upstream Downstream

Connection to Traditional Navigable Waterway: Flows into WUS P, a tributary to the Gunpowder River, a TNW.

Other Comments: _____



APPENDIX D PHOTO DOCUMENTATION

Northbound Wetlands and Waters



Photo 1: BRBR-WET21



Photo 2: BRBR-WET21 – UPLAND



Photo 3: WET D

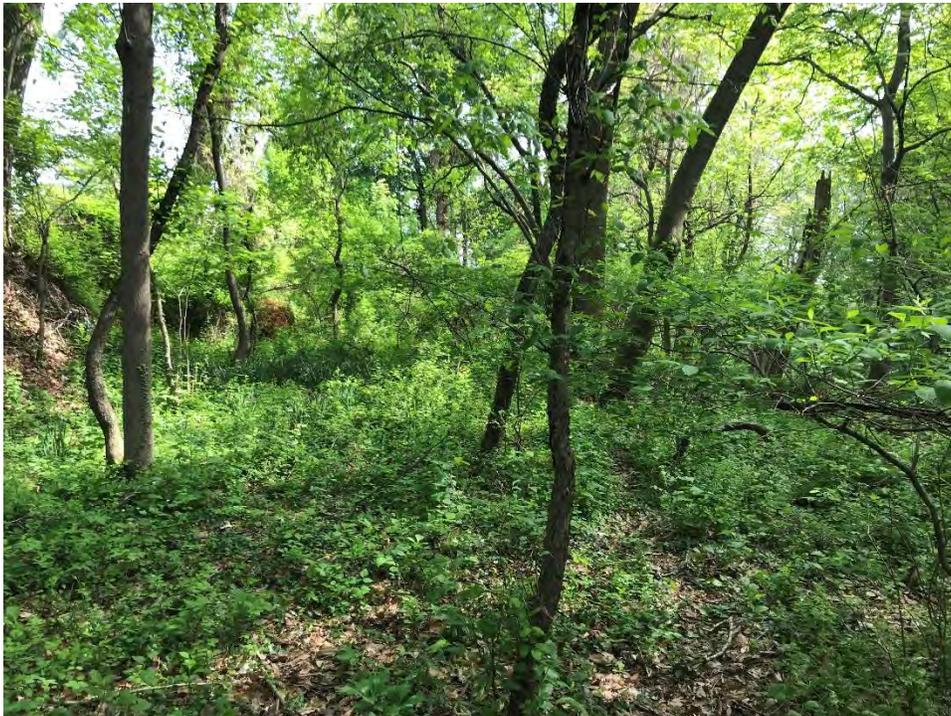


Photo 4: BRBR-WET22 PSS



Photo 5: BRBR-WET22 PEM



Photo 6: WET F



Photo 7: WET D, BRBR-WET22, F – UPLAND



Photo 8: WET G



Photo 9: WET H



Photo 10: WET G, H – UPLAND



Photo 11: WET I



Photo 12: WET J



Photo 13: WET K



Photo 14: WET J, K – UPLAND



Photo 15: BRBR-WUS1 - UPSTREAM



Photo 16: WUS Q – DOWNSTREAM



Photo 17: WUS R – UPSTREAM



Photo 18: BRBR-WUS8 – DOWNSTREAM



Photo 19: WUS S - UPSTREAM



Photo 20: BRBR-WUS7 - UPSTREAM



Photo 21: WUS G – DOWNSTREAM



Photo 22: WUS H - UPSTREAM



Photo 23: WUS F – DOWNSTREAM



Photo 24: WUS I – UPSTREAM



Photo 25: BRBR-WUS7 – DOWNSTREAM



Photo 26: WUS T – DOWNSTREAM



Photo 27: BRBR-WUS1 – UPSTREAM



Photo 28: BRBR-WUS2 – UPSTREAM



Photo 29: WUS J – DOWNSTREAM



Photo 30: WUS L - DOWNSTREAM



Photo 31: WUS K – DOWNSTREAM



Photo 32: WUS M – DOWNSTREAM



Photo 33: GPJR-WUS2A – UPSTREAM



Photo 34: GPJR-WUS2A– DOWNSTREAM



Photo 35: GPJR-WUS1 – DOWNSTREAM



Photo 36: GPJR-WUS3 – UPSTREAM



Photo 37: GPJR-WUS10B UPSTREAM

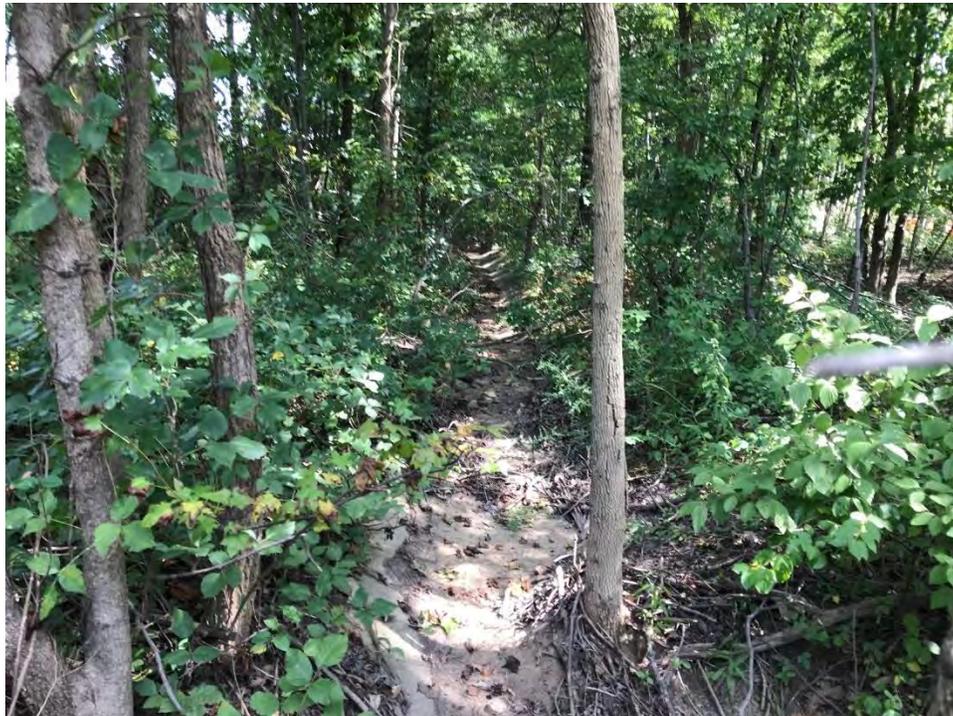


Photo 38: WUS P – UPSTREAM



Photo 39: GPJR-WUS4 – DOWNSTREAM



Photo 40: WUS O – DOWNSTREAM

Southbound Wetlands and Waters



Photo 41: WMHG-WET10



Photo 42: BRBR-WET 5



Photo 43: BRBR-WET6



Photo 44: BRBR-WET98



Photo 45: BRBR-WET99



Photo 46: GPJR-WET4



Photo 47: WET95A



Photo 48: WET96A



Photo 49: WMHG-WUS9 – DOWNSTREAM



Photo 50: BRBR-WUS11 - UPSTREAM



Photo 51: GPJR-WUS13A – UPSTREAM



Photo 52: BRBR-WUS9 – DOWNSTREAM



Photo 53: BRBR-WUS98 – DOWNSTREAM



Photo 54: BRBR-WUS99 - DOWNSTREAM



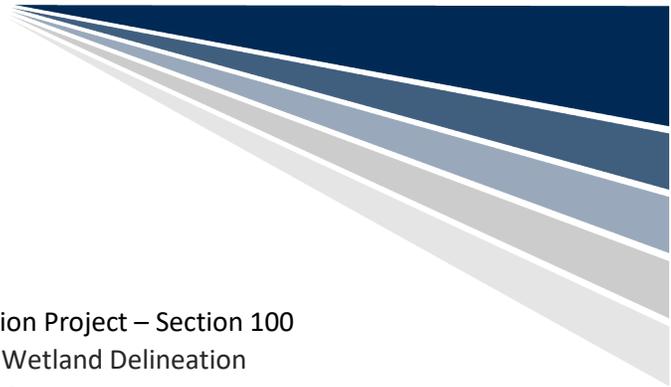
Photo 55: GPJR-WUS4 - UPSTREAM



Photo 56: GPJR-WUS1 – UPSTREAM



APPENDIX E
PRELIMINARY JURISDICTIONAL
DETERMINATION MINUTES



Meeting Minutes

I-95 Express Toll Lanes Northbound Extension Project – Section 100

Preliminary JD of Revised Northbound Wetland Delineation

Friday, May 29, 2020

8:30 am – 12:30 pm

Attendees:

Name

E-mail address

Erin Markel, JMT/GEC

emarkel@jmt.com

Andrew Beaudet, USACE

Andrew.d.beaudet@usace.army.mil

Gillian Rines, McCormick Taylor/MDE

glrines@mccormicktaylor.com

Kyle Spendiff, WSP/MDTA

kyle.spendiff@wsp.com

Introduction:

1. JMT began the meeting by discussing the history of the project and its delineations.
 - 1.1 In 2017, JMT and Wallace Montgomery were tasked with delineating the study area of KH-3009, using the 2004 Section 100 wetland delineation as a starting point. Wallace Montgomery delineated the southbound side, while JMT delineated the northbound side. After the fieldwork was completed, JMT was informed that the area south of New Forge Road was already permitted under the Section 100 permit, and that the 2004 delineation used in the Section 100 permit should continue to be shown on plans. JMT then archived the 2017 data from Section 100.
 - 1.2 As design for KH-3009 progressed, it became apparent that portions of the wetland delineation that overlapped with previous Section 100 improvements were outdated, which caused problems with E&S design. Specifically, BRBR-WET20 and BRBR-WUS20 had been impacted by the KH-1403 Section 100 contract and lost hydrology as a result. Continuing to show these resources on the plans resulted in the designers needing to design maintenance of streamflow for features that no longer existed.
 - 1.3 JMT unarchived the 2017 Section 100 delineation data and completed a delineation report. To meet JMT's current standards, additional fieldwork was completed in 2019 to complete stream datasheets and take stream photos.
 - 1.4 After discussion with MDTA, JMT updated the KH-3009 plans south of New Forge Road to show the revised delineation, so that PS&E level design appropriate to the current conditions could proceed. MDTA and JMT reached out to the agencies to inform them of the new delineation, share the completed wetland report, and to ask for guidance.

2. Ms. Markel summarized recent permit discussions regarding the revised delineation.
 - 2.1 MDE is currently considering the best way to permit the impacts to updated resources; options include modifying the Section 100 permit, which is now 15 years old, or adding the Section 100 impacts of KH-3009 to the ETL Section 200 Phase I permit, which authorizes the remainder of KH-3009's impacts. Both permits need to be modified. The Section 100 permit needs to be modified upon completion of Section 100 impacts to reflect the updated, final design of all contracts, while the Section 200 Phase I permit needs to be modified due to proposed impacts to new resources. MDE has requested estimated Section 100 impact totals using the new delineation and will make a decision once they have reviewed those numbers. Andy Beaudet of USACE requested to be invited to future Section 100 permit discussions.
 - 2.1.1 Following the meeting, MDE and USACE determined that impacts from the Section 100 portion of KH-3009 will be moved to the Section 200 Phase I permit.
 - 2.2 MDE has directed that the Section 100 noise walls, KH-3013 and KH-3016, continue using the original Section 100 delineation performed in 2004 instead of the delineation performed in 2017, since construction has already been completed. In addition, the southbound Section 100 improvements are not scheduled to occur in the foreseeable future. Therefore, the field review focused on resources that will be impacted by KH-3009 and which have changed since the original Section 100 delineation.
 - 2.2.1 Following the meeting, MDE and USACE determined that impacts from the KH-3013 and KH-3016 would be moved to the Section 200 Phase I permit, and that impacts will be calculated using the updated delineation. However, a preliminary JD of the southbound resources will not be needed; MDE and USACE will review the delineation in the KH-3013 area as part of the JPA review. The preliminary JD of the KH-3009 resources also included the resources impacted by KH-3016.
3. Ms. Markel discussed the changes between the 2004 delineation and the 2017 delineation. These changes are also noted in the attached resource summary table.
 - 3.1 BRBR-WET20 and BRBR-WUS20, located in the vicinity of the completed KH-1403 improvements, have lost hydrology due to topography changes and construction of a stormwater management pond. BRBR-WET21, located immediately downstream, has decreased in size, likely due to both loss of hydrology and a downstream headcut. These three resources were originally delineated during construction of KH-1403, after the Section 100 permit was issued; impacts to the resources were included in the Section 100 quarterly updates.
 - 3.2 BRBR-WET22 was also delineated during construction of KH-1403. It was largely located outside of the LOD for that contract, with impacts proposed only to its buffer, so a conservative delineation consisting of only the boundary closest to the road was completed at that time. The 2017 delineation mapped this wetland in more detail, resulting in extensive changes to its boundary.

- 3.3 Minor changes in extents occurred along several streams, possibly due to stream erosion over time, with the 2017 boundaries considered to be more accurate. These streams consisted of BRBR-WUS1, BRBR-WUS8, GPJR-WUS1, GPJR-WUS3, and GPJR-WUS4 (later renamed GPJR-WUS1B).
- 3.4 Stream flow classifications for the following streams changed between delineations: GPJR-WUS2A and GPJR-WUS2B (originally permitted as GPJR-WUS2, but consists of two separate streams that have since been renamed to disambiguate), GPJR-WUS1, and GPJR-WUS3. In the 2004 delineation, GPJR-WUS1 and GPJR-WUS1 were classified as intermittent and GPJR-WUS3 were classified as perennial; in the 2017 delineation all were classified as ephemeral.
- 3.5 New resources were delineated in several locations, consisting mostly of streams located in roadside ditches and new wetlands. The addition of new wetlands was likely due to the introduction of the Regional Supplement to the USACE Wetland Delineation Manual since the original delineations were performed. All wetlands and streams named with single letters (e.g., WUS F or WET D) are new resources.
- 3.6 BRIS-WET3 was considered non-jurisdictional during the 2005 Section 100 JD, but was delineated again in 2017. It appears to have been constructed as a stormwater management feature.
4. JMT noted that delineation of the median was not included in the scope of the 2017 field efforts, and that the 2004 delineation is continuing to be shown in that location.
5. The group then travelled to the field to review the resources.

Resource Field Review:

1. The Section 100 northbound resources and field review discussions that took place during the meeting are summarized in the attached Preliminary JD Summary Table, including whether the resources will be impacted by KH-3009, their classification under the 2017 delineation, whether they were field reviewed, and any agency comments about the delineation.
2. The following determinations were made:
 - 2.1 WUS I was determined to be a non-jurisdictional roadside ditch.
 - 2.2 BRIS-WET3 was previously considered non-jurisdictional during the Section 100 JD, but was re-delineated in 2017. It appears to have been thrown out in the original JD due to being constructed as a stormwater management feature. USACE and MDE requested that MDTA provide records confirming the wetland was constructed as a stormwater management feature; if so, it will continue to be considered non-jurisdictional.
 - 2.2.1 Following the meeting, MDTA determined that the 2004 wetland delineation report states that BRIS-WET3 was constructed as a stormwater feature.
 - 2.2.2 Following the meeting, MDE and USACE determined that they would not take jurisdiction over BRIS-WET3.

2.3 MDE and USACE determined that GPJR-WUS10B, GPJR-WUS1, GPJR-WUS2B, and GPJR-WUS3 should be reclassified as intermittent streams. However, a small portion of GPJR-WUS1 is an ephemeral concrete ditch, and will be renamed as GPJR-WUS1A. GPJR-WUS2A will continue to be classified as ephemeral.

2.3.1 Following the meeting, it was determined that the preliminary JD should be revised to reflect pre-KH-3016 conditions; therefore, GPJR-WUS1A was classified as intermittent.

2.4 Several resources were impacted by the construction of the KH-3016 noise wall in the interim between the 2017 delineation and the field review. GPJR-WET1, WET J, and WET K no longer exist. Ephemeral GPJR-WUS4 and WUS O, which would previously have been considered jurisdictional due to their conveyance of wetland hydrology, are not jurisdictional to USACE under the current circumstances. Of these resources, only GPJR-WUS4 would be impacted by KH-3009.

2.4.1 MDE stated they wish for the wetlands to remain in the delineation to reflect pre-KH-3016 conditions.

2.4.2 Following the field meeting, JMT realized that GPJR-WUS4 was delineated in 2004 as part of GPJR-WUS1. The GPJR-WUS4 label used in 2017 was an error; a separate GPJR-WUS4 is located adjacent to southbound I-95. JMT is renaming the GPJR-WUS4 adjacent to northbound as GPJR-WUS1B to disambiguate it from the rest of GPJR-WUS1.

2.4.3 Following the meeting, it was determined that the preliminary JD should be revised to reflect pre-KH-3016 conditions; therefore, GPJR-WUS1B, WUS O, and WUS P downstream of its confluence with WUS O, are considered intermittent. In addition, those streams as well as GPJR-WET1 and WET J will be regulated by both MDE and USACE. WET K is considered isolated by USACE and will only be regulated by MDE.

2.5 The delineated boundaries and classifications of all other field-reviewed resources were confirmed.

3. A field visit was also made to WP001, a small wetland delineated in Section 200 Phase I adjacent to Raphel Road. This wetland was delineated after the Section 200 Phase I permit was issued. MDE will take jurisdiction over this wetland, while USACE is considering the wetland to be isolated and therefore not jurisdictional.
4. MDE requested that cross-culverts be added to delineation maps.
5. MDE noted that several geotechnical borings had not been backfilled. MDTA will direct contractors to backfill the boring holes.

Action Items:

1. MDTA to look for evidence that BRIS-WET3 is constructed SWM.
2. JMT to add cross culverts to the delineation maps and impact plates.
3. MDTA to direct contractors to backfill geotechnical boring holes.

The above represents a true and accurate account of the discussion during this meeting to the best of my knowledge. If there are any conflicts, misrepresentations, or omissions with the above statements, please contact the undersigned within 7 days of this date.

Erin R Markel

07/17/20

Erin Markel

Date

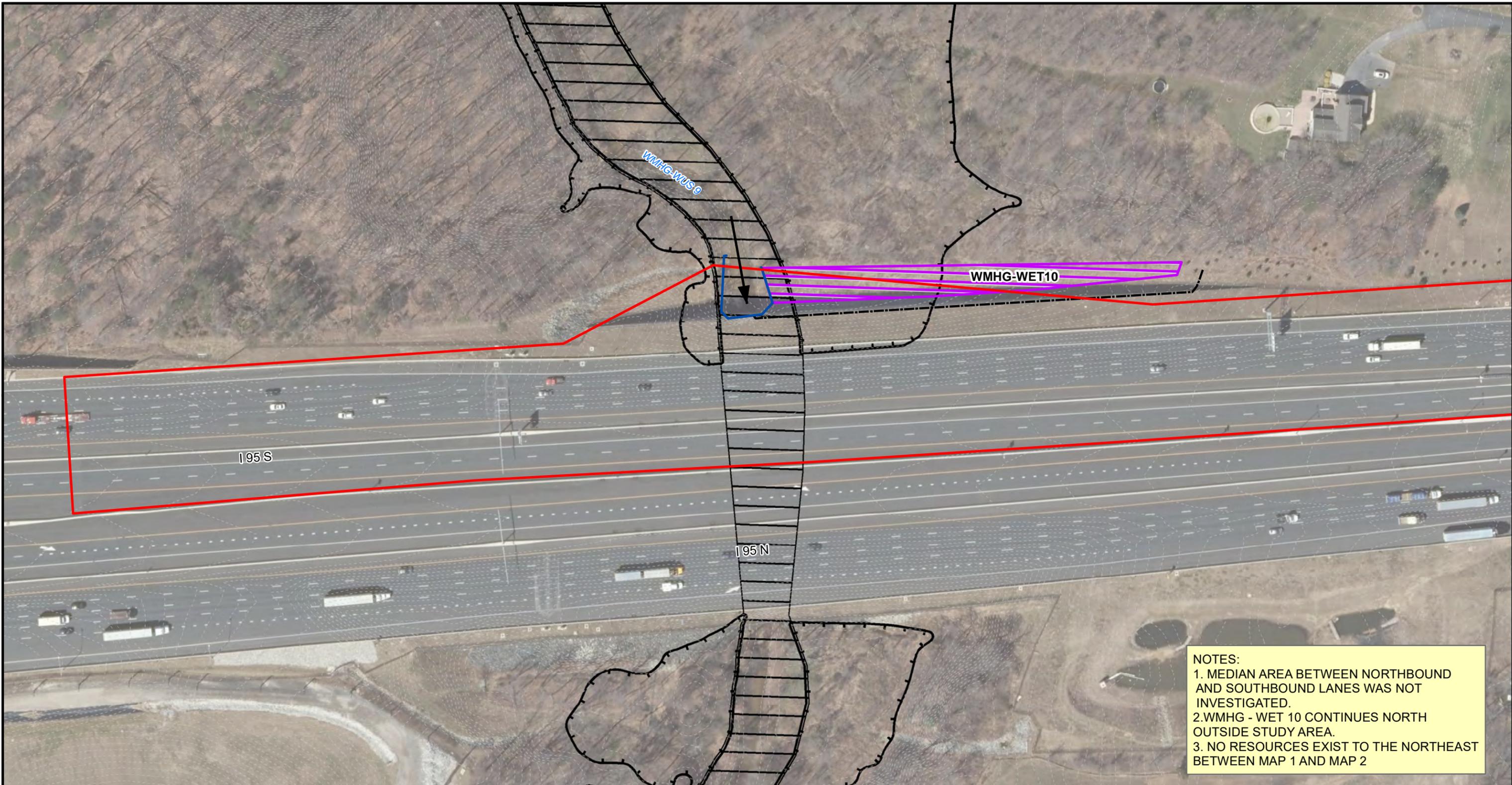
Copy: Attendees, Project File

Attachments: Section 100 Revised Delineation Preliminary JD Summary Table, 2017 Wetland Delineation Maps, Revised 2017 Wetland Delineation Maps

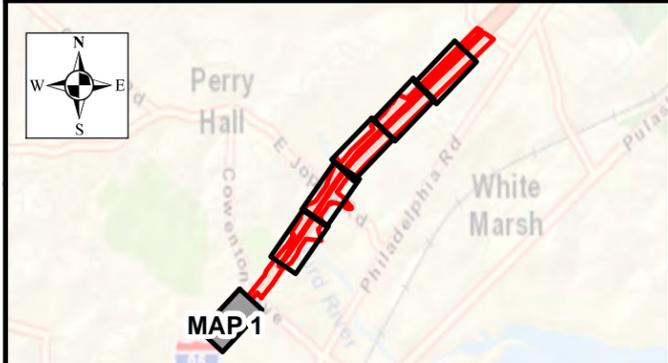
Section 100 Revised Delineation Northbound Preliminary JD Summary Table							
2017 Report Map No.	Resource	Impacted by KH-3009?	2017 Classification	Change From Previous Delineation	Field Reviewed During 2020 Meeting?	Agency Comments	Notes
NA	BRBR-WET20	No*	No Longer Exists	Impacted by KH-1403 and no longer exists	Yes	USACE and MDE concurred that resource no longer exists	Originally delineated during construction of KH-1403 after Section 100 permit was issued.
NA	BRBR-WUS20	No*	No Longer Exists	Impacted by KH-1403 and no longer exists	Yes	USACE and MDE concurred that resource no longer exists	Originally delineated during construction of KH-1403 after Section 100 permit was issued.
2	BRBR-WET21	No	PSS	Decreased in size due to impacts from KH-1403 and a headcut	Yes	USACE and MDE concurred with 2017 delineation	Originally delineated during construction of KH-1403 after Section 100 permit was issued.
2	WUS Q	No	Ephemeral	New resource; previously delineated as part of BRBR-WET21	No		
2	WUS R	No	Ephemeral	New resource	No		
2,3	BRBR-WUS1	Yes	Perennial	Slight change in extents between WET G and BRBR-WUS2	Yes	USACE and MDE concurred with 2017 delineation	
2	BRBR-WUS8	Yes	Perennial	Slight change in extents near culvert	Yes	USACE and MDE concurred with 2017 delineation	
2	WUS S	No	Intermittent	New resource	No		
2	BRBR-WET22	Yes	PEM	Change in extents - smaller in some areas and larger in others	Yes	USACE and MDE concurred with 2017 delineation	Originally delineated during construction of KH-1403 after Section 100 permit was issued; at that time only buffer impacts were proposed, so the delineation did not extend further than the immediate shoulder of the road
2	WUS F	No	Ephemeral	New resource	No		
2	WET D	No	PFO	New resource	No		
2	WUS G	No	Ephemeral	New resource	No		
2	WUS H	No	Ephemeral	New resource	No		
3	BRBR-WET22	Yes	PSS	Newly delineated/expansion	Yes	USACE and MDE concurred with 2017 delineation	PSS portion of BRBR WET22 is an expansion of the previously delineated wetland
3	BRIS-WET3	Yes	PEM	Previously not jurisdictional, due to being built as a SWM BMP	Yes	MDE and USACE determined that this resource is non-jurisdictional	The 2004 wetland delineation report states BRIS-WET3 was created as stormwater management
3	WUS I	Yes	Ephemeral	New resource	Yes	USACE ruled a non-jurisdictional roadside ditch	
3	WET F	Yes	PEM	New resource	Yes	USACE and MDE concurred with 2017 delineation	
3	BRBR-WUS7	No	Perennial	No changes	No		
3	WUS T	No	Ephemeral	New resource	No		
3	BRBR-WUS2	No	Ephemeral	No changes	No		
NA	BRBR-WET10	No	None	Outside Study Area	No		
NA	BRBR-WET11	No	None	Outside Study Area	No		
NA	BRBR-WUS12	No	None	Outside Study Area	No		
3	WUS J	Yes	Intermittent	New resource	Yes	USACE and MDE concurred with 2017 delineation	
4	WUS K	Yes	Ephemeral	New resource	Yes	USACE and MDE concurred with 2017 delineation	

Section 100 Revised Delineation Northbound Preliminary JD Summary Table							
2017 Report Map No.	Resource	Impacted by KH-3009?	2017 Classification	Change From Previous Delineation	Field Reviewed During 2020 Meeting?	Agency Comments	Notes
4	WET G	No	PFO	New resource	No		
4	WET H	Yes	PEM	New resource	Yes	USACE and MDE concurred with 2017 delineation	
4	WUS M	Yes	Ephemeral	New resource	Yes	USACE and MDE concurred with 2017 delineation	
4	WET I	No	PFO	New resource	No		
4,5	BRBR-WET 1	Yes	PFO	No changes	No		
5	GPJR-WUS2A	Yes	Ephemeral	Previously intermittent	Yes	USACE and MDE concurred with 2017 delineation	
5	GPJR-WUS2B	Yes	Ephemeral	Previously intermittent	Yes	USACE and MDE reclassified as an intermittent stream	
5	GPJR-WUS1, GPJR-WUS1A	Yes	Ephemeral	Previously intermittent; slight changes in extent between BRBR-WET1 and GPJR-WUS4	Yes	USACE and MDE reclassified as an intermittent stream	
5	GPJR-WUS3	No	Ephemeral	Previously perennial, slight change in extents	Yes	USACE and MDE reclassified as an intermittent stream	
5	GPJR-WUS4 (now renamed GPJR-WUS1B)	Yes	Ephemeral	Previously intermittent, slight change in extents	Yes	USACE and MDE reclassified as an intermittent stream	
5	GPJR-WUS10B	No	Ephemeral	Listed in permit as "classification type not available"	Yes	USACE and MDE reclassified as an intermittent stream	
5	WUS O	Yes	Ephemeral	New resource	Yes	USACE and MDE reclassified as an intermittent stream	
5	GPJR-WET1	No	PFO	No changes	Yes	USACE and MDE concurred with 2017 delineation	
5	WET J	No	PFO	New resource	Yes	USACE and MDE concurred with 2017 delineation	
5,6	WUS P	Yes	Ephemeral	New resource	Yes	USACE and MDE reclassified as an intermittent stream downstream of its confluence with WUS O	
6	WET K	No	PEM/PUB	New resource	Yes	USACE and MDE concurred with 2017 delineation, but USACE considers the wetland to be isolated.	

*Resource would be impacted by the KH-3009 LOD if the resource continued to exist.

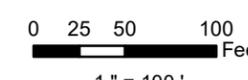


NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. WMHG - WET 10 CONTINUES NORTH OUTSIDE STUDY AREA.
 3. NO RESOURCES EXIST TO THE NORTHEAST BETWEEN MAP 1 AND MAP 2



Legend	
Approx. Study Area	Streams
Matchlines	Non-Jur.
2 ft. Contours	Eph.
Culverted Streams	Int.
Wetland Buffer	Per.
100-Year Floodplain	Wetlands
Floodway	Non-Jur.
	PEM
	PFO
	PSS
	PUB



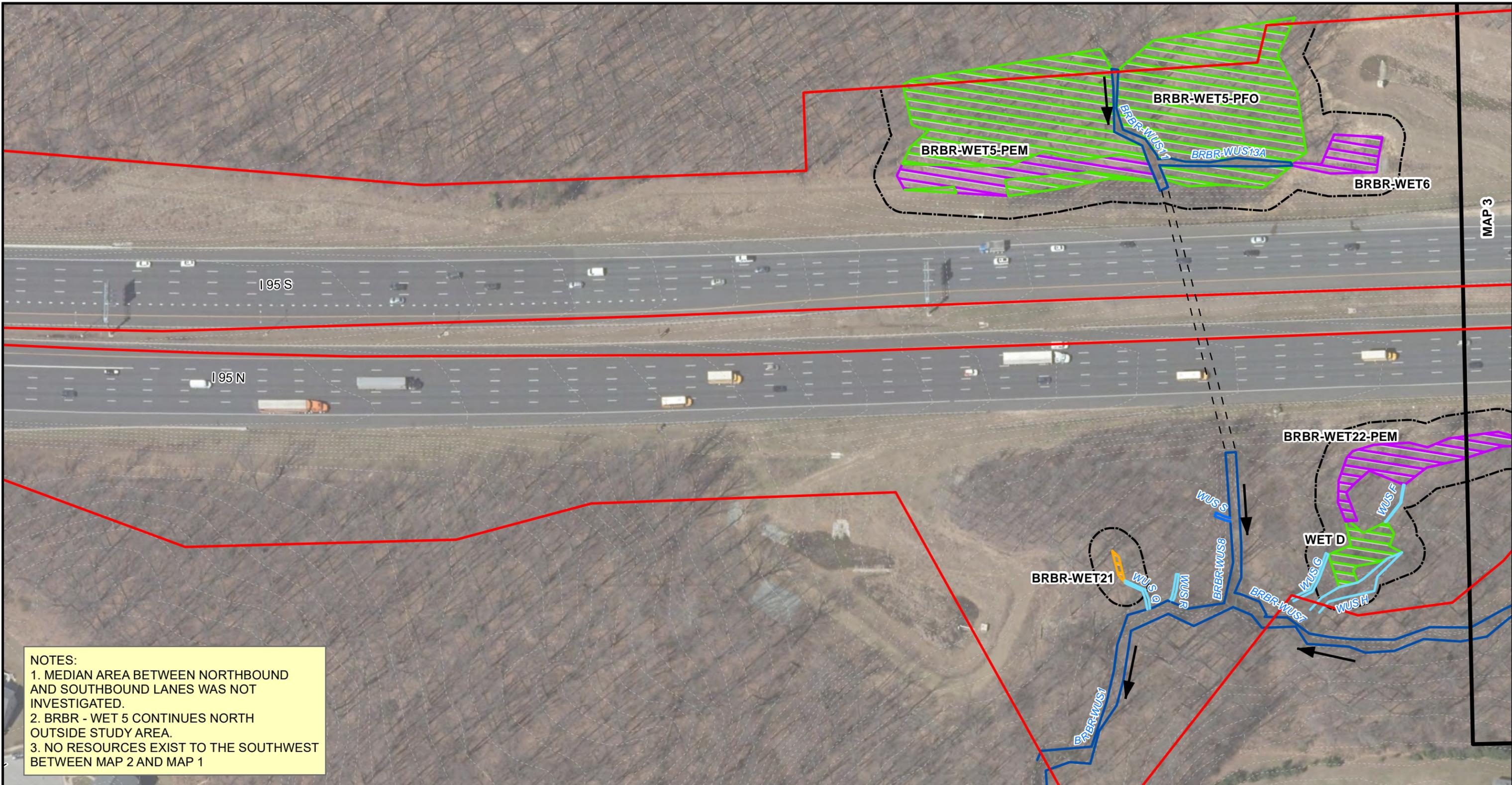



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 SOURCE: MD IMAP, FEMA
 BALTIMORE COUNTY

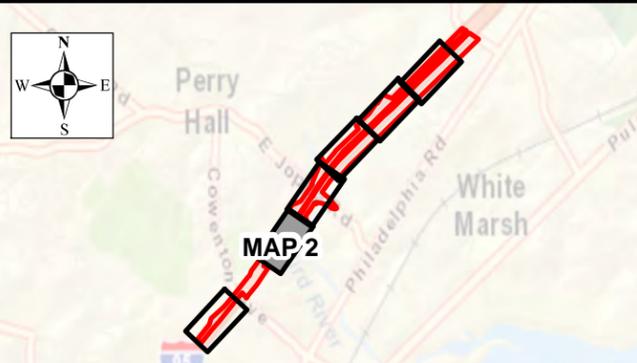
**DELINEATED RESOURCE
 MAP 1**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: JUNE 2020



NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. BRBR - WET 5 CONTINUES NORTH OUTSIDE STUDY AREA.
 3. NO RESOURCES EXIST TO THE SOUTHWEST BETWEEN MAP 2 AND MAP 1



Legend	
Approx. Study Area	Non-Jur. Streams
Matchlines	Eph. Streams
2 ft. Contours	Int. Streams
Culverted Streams	Per. Streams
Wetland Buffer	Non-Jur. Wetlands
100-Year Floodplain	PEM Wetlands
Floodway	PFO Wetlands
	PSS Wetlands
	PUB Wetlands

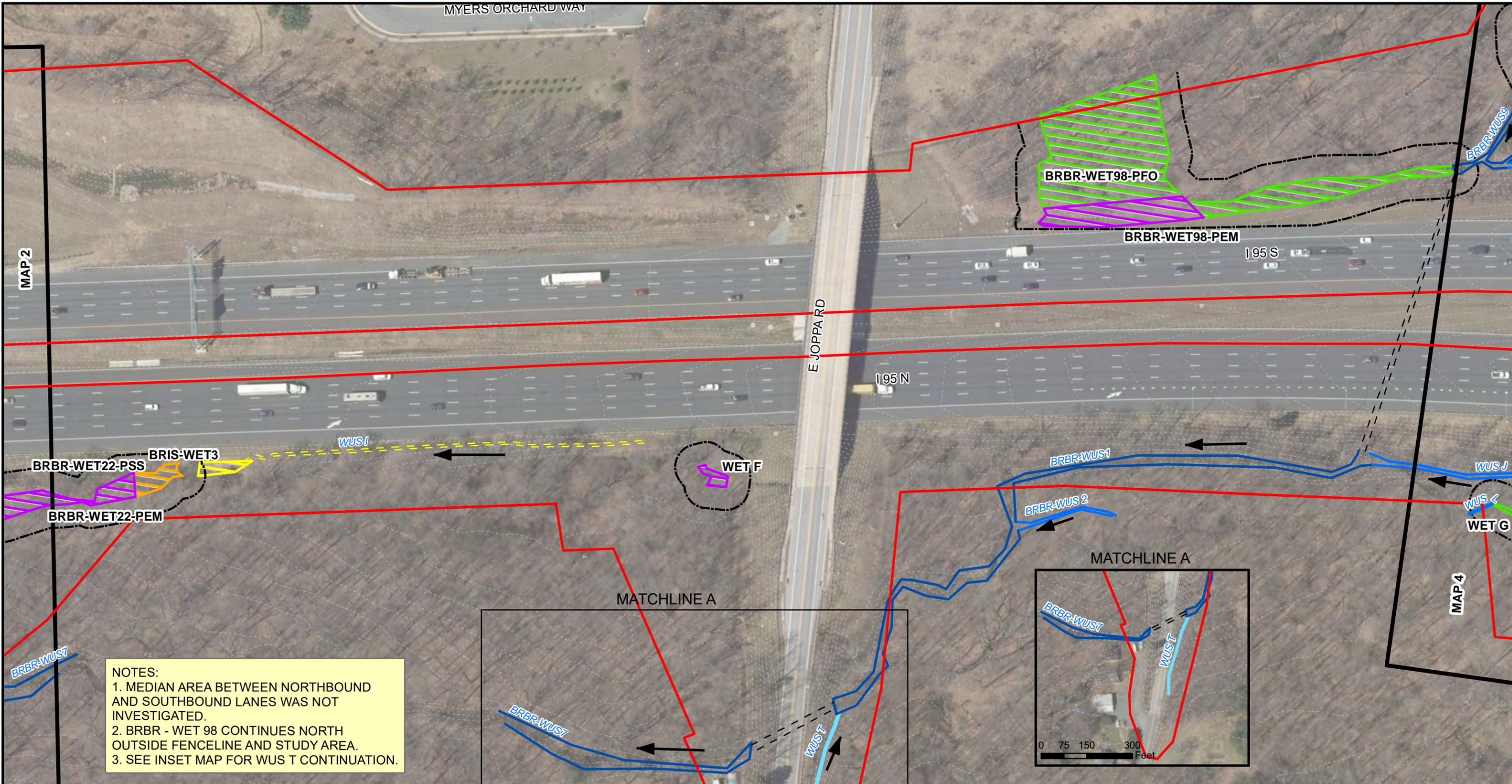
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 1" = 100'

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 SOURCE: MD IMAP, FEMA
 BALTIMORE COUNTY

**DELINEATED RESOURCE
 MAP 2**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: JUNE 2020



NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. BRBR - WET 98 CONTINUES NORTH OUTSIDE FENCELINE AND STUDY AREA.
 3. SEE INSET MAP FOR WUS T CONTINUATION.



Legend	
	Approx. Study Area
	Matchlines
	2 ft. Contours
	Culverted Streams
	Wetland Buffer
	Non-Jur. Streams
	Eph. Streams
	Int. Streams
	Per. Streams
	Non-Jur. Wetlands
	PEM Wetlands
	PFO Wetlands
	PSS Wetlands
	PUB Wetlands
	100-Year Floodplain
	Floodway

1" = 100'

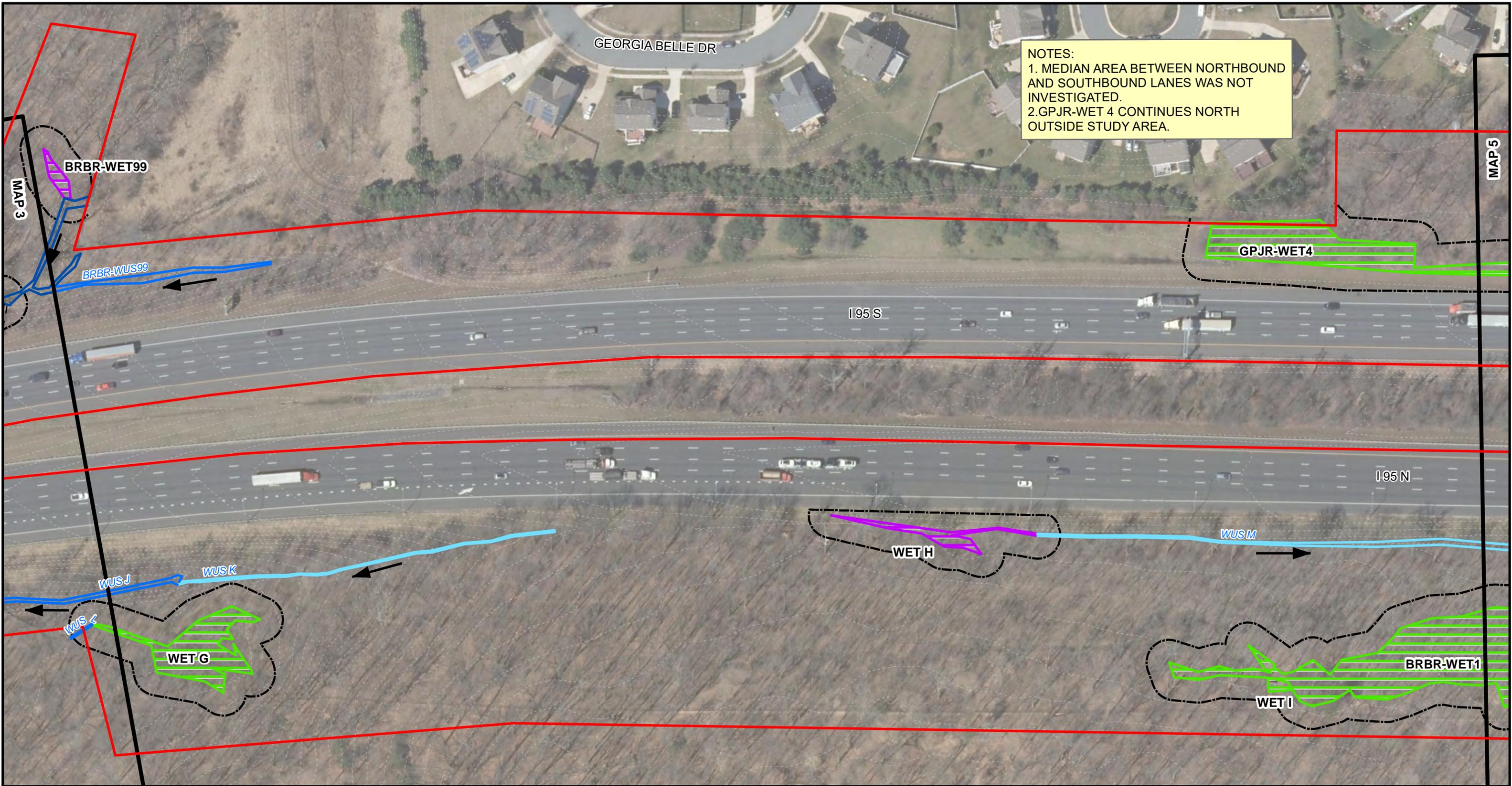
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 SOURCE: MD IMAP, FEMA
 BALTIMORE COUNTY

**DELINEATED RESOURCE
 MAP 3**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: JUNE 2020

NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. GPJR-WET 4 CONTINUES NORTH OUTSIDE STUDY AREA.



Legend	
	Approx. Study Area
	Matchlines
	2 ft. Contours
	Culverted Streams
	Wetland Buffer
	Non-Jur. Streams
	Eph. Streams
	Int. Streams
	Per. Streams
	Non-Jur. Wetlands
	PEM Wetlands
	PFO Wetlands
	PSS Wetlands
	PUB Wetlands
	100-Year Floodplain
	Floodway

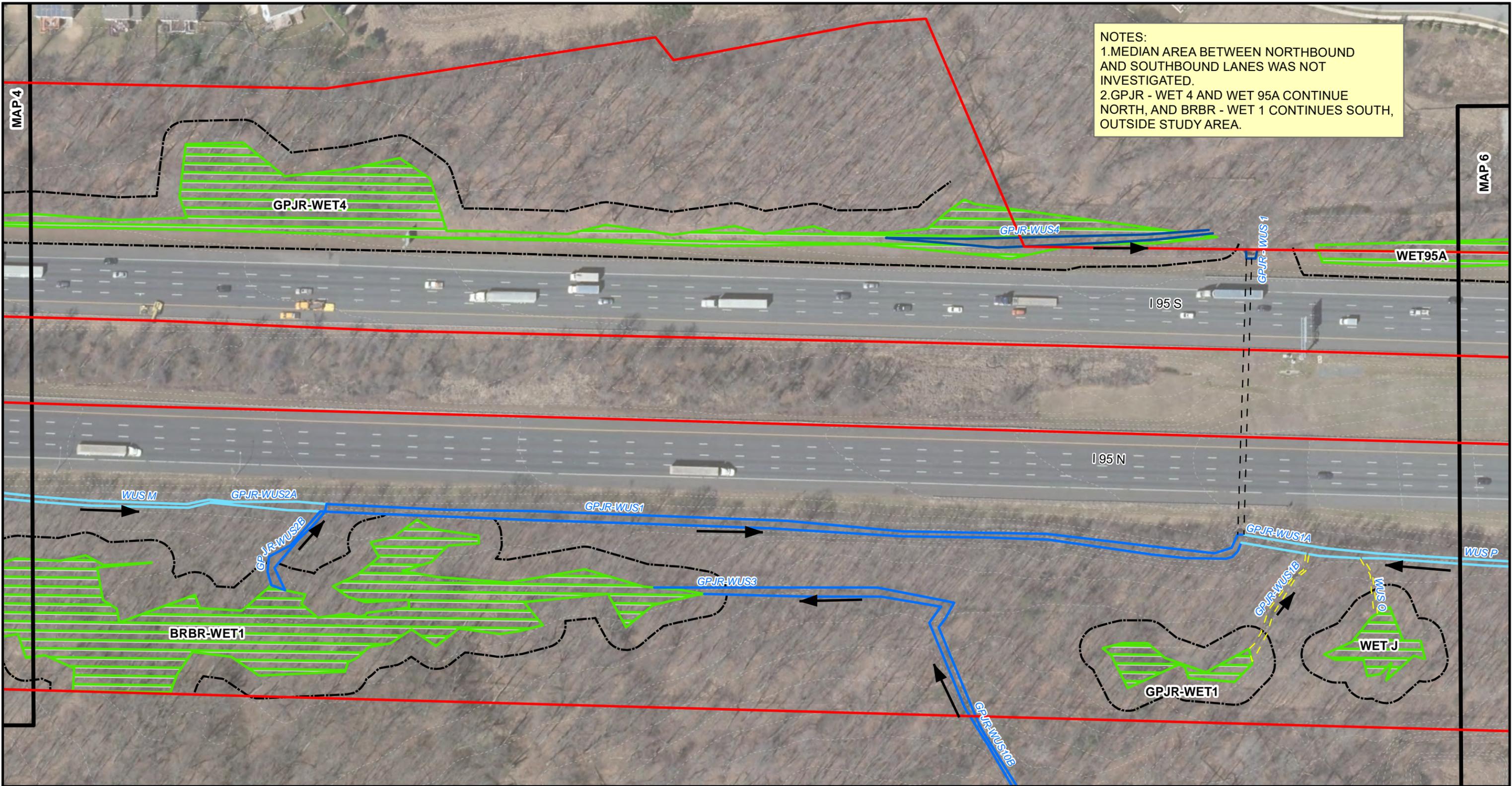
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 SOURCE: MD IMAP, FEMA
 BALTIMORE COUNTY

**DELINEATED RESOURCE
 MAP 4**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

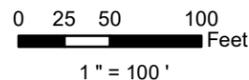
DATE: JUNE 2020

NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. GPJR - WET 4 AND WET 95A CONTINUE NORTH, AND BRBR - WET 1 CONTINUES SOUTH, OUTSIDE STUDY AREA.



Legend	
	Approx. Study Area
	Matchlines
	2 ft. Contours
	Culverted Streams
	Wetland Buffer
	Non-Jur. Streams
	Eph. Streams
	Int. Streams
	Per. Streams
	Non-Jur. Wetlands
	PEM Wetlands
	PFO Wetlands
	PSS Wetlands
	PUB Wetlands
	100-Year Floodplain
	Floodway



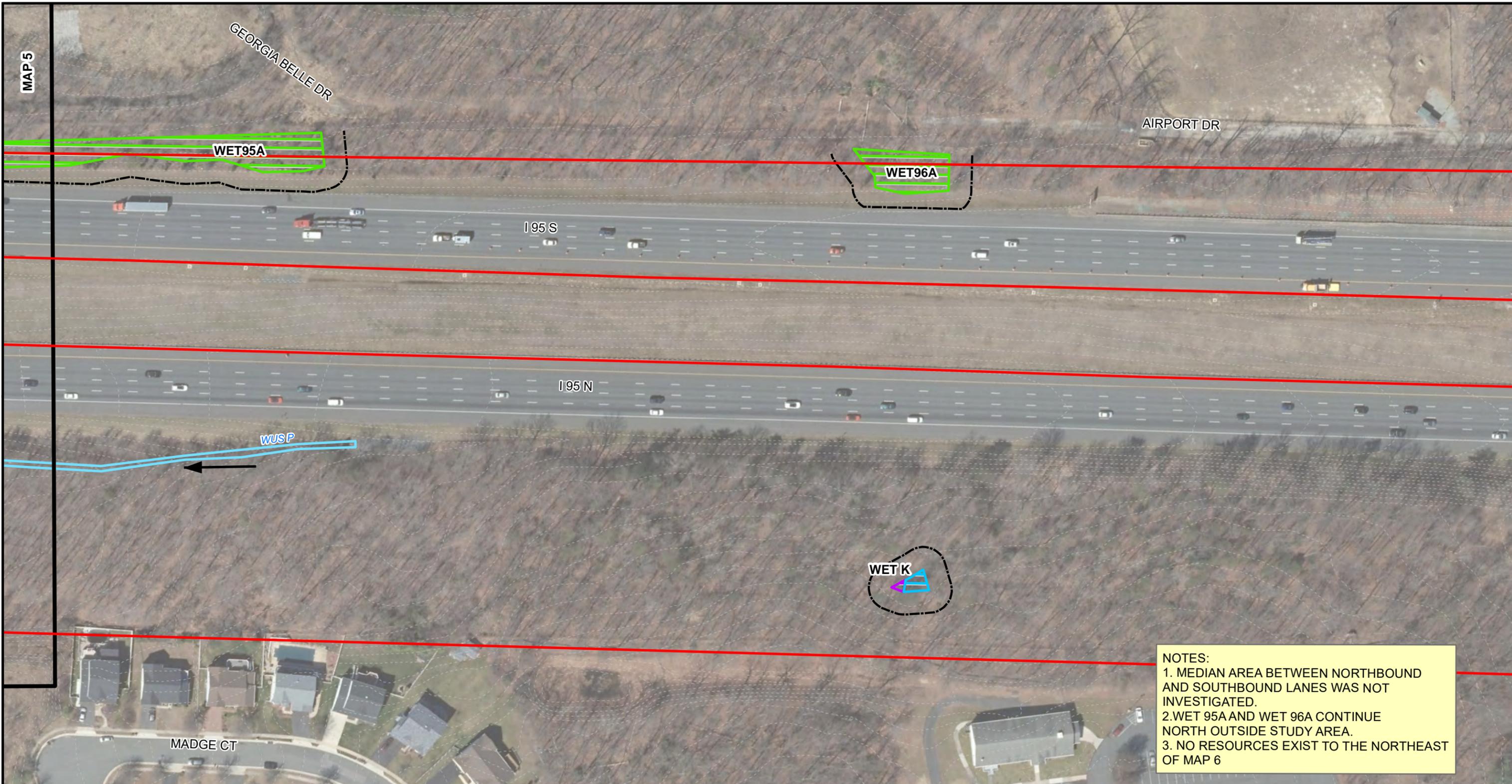



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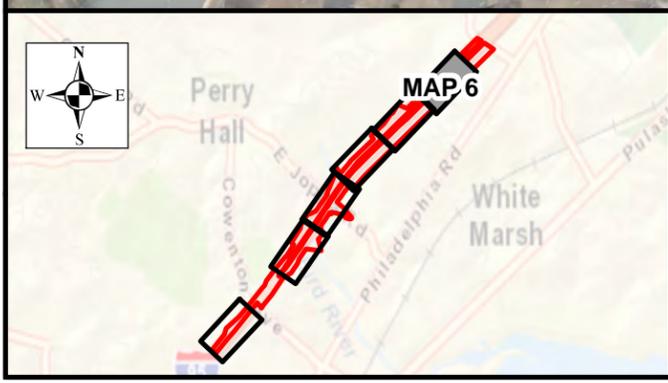
**DELINEATED RESOURCE
 MAP 5**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: JUNE 2020



NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. WET 95A AND WET 96A CONTINUE NORTH OUTSIDE STUDY AREA.
 3. NO RESOURCES EXIST TO THE NORTHEAST OF MAP 6



Legend	
	Approx. Study Area
	Matchlines
	2 ft. Contours
	Culverted Streams
	Wetland Buffer
Streams	
	Non-Jur.
	Eph.
	Int.
	Per.
Wetlands	
	Non-Jur.
	PEM
	PFO
	PSS
	PUB
	100-Year Floodplain
	Floodway

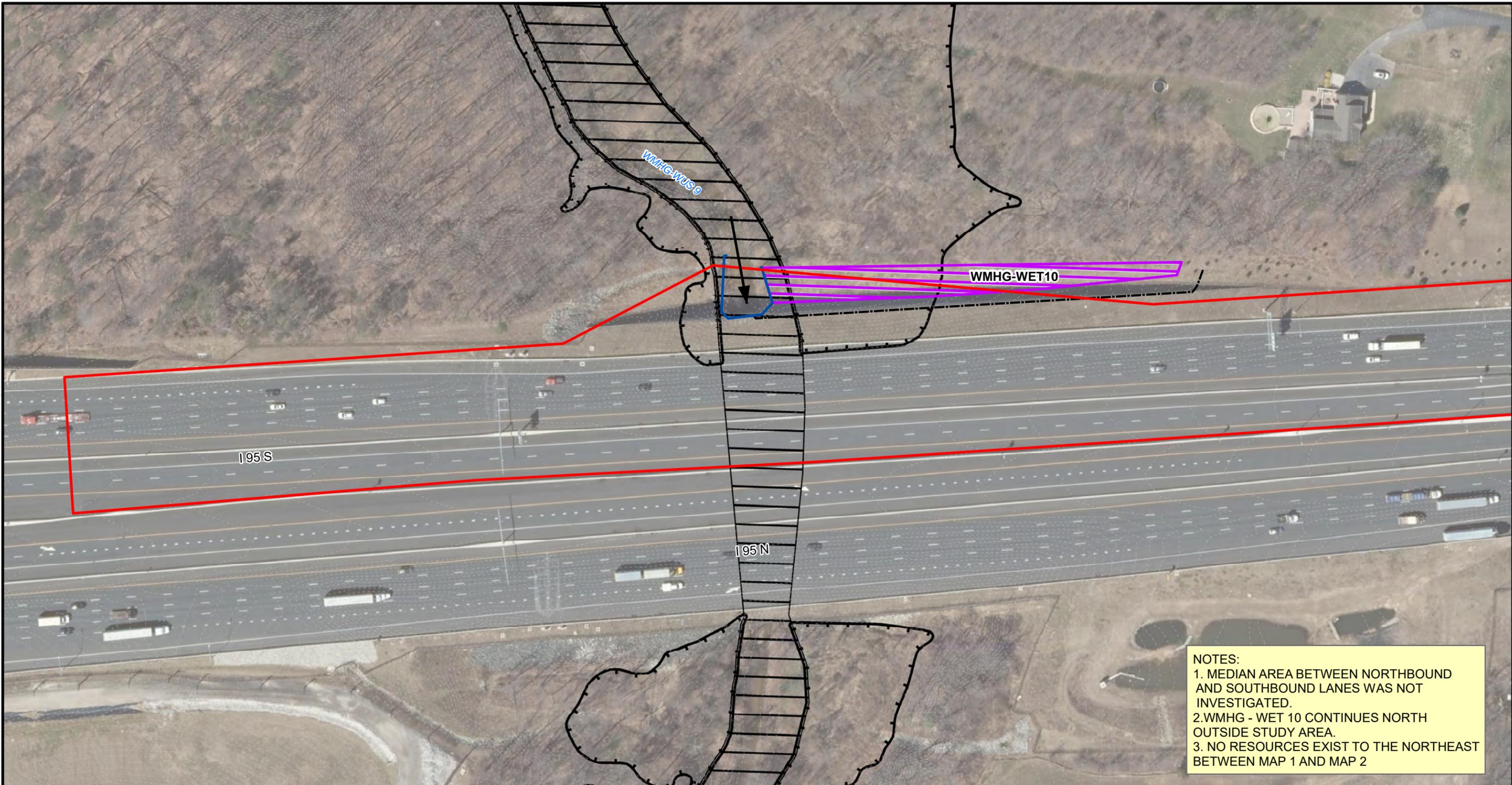
MDTA
 JMT
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 1" = 100'

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 SOURCE: MD IMAP, FEMA
 BALTIMORE COUNTY

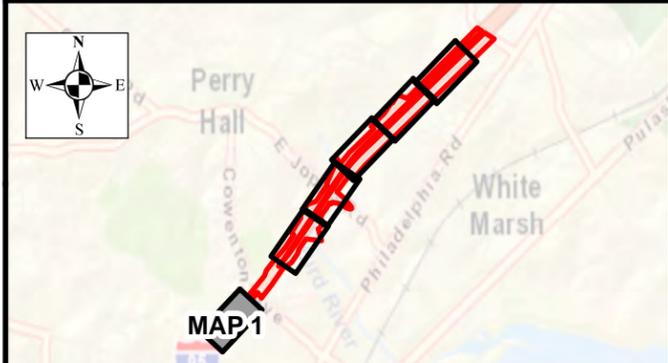
**DELINEATED RESOURCE
 MAP 6**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: JUNE 2020

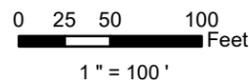


NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. WMHG - WET 10 CONTINUES NORTH OUTSIDE STUDY AREA.
 3. NO RESOURCES EXIST TO THE NORTHEAST BETWEEN MAP 1 AND MAP 2



Legend		Streams	Wetlands	100 Yr. Floodplain
	Approximate Study Area			
	Matchlines			
	2 ft. Contours			
	Wetland Buffer			
			EPH	
			INT	
			PER	
			PEM	
			PFO	
			PSS	
			PUB	
				Floodplain
				Floodway



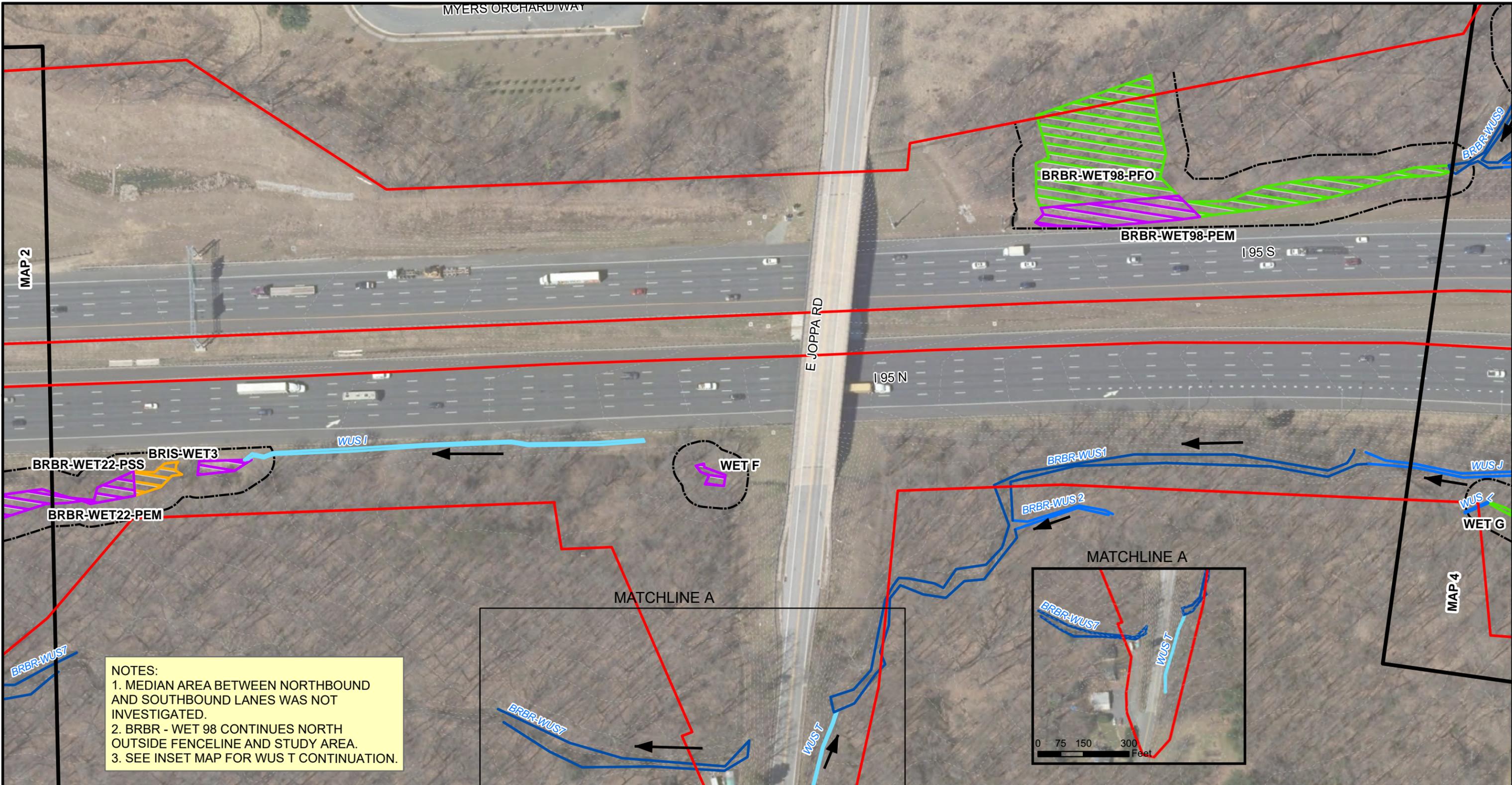



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 BALTIMORE COUNTY

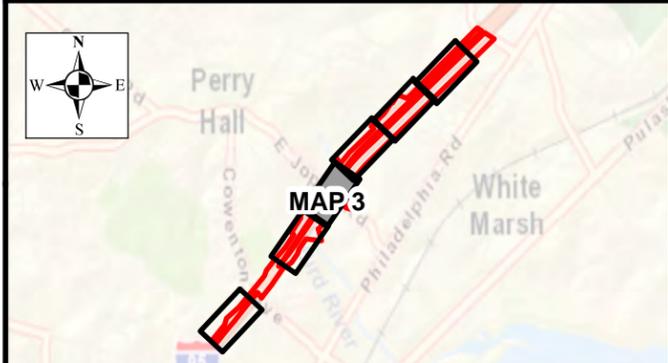
**DELINEATED RESOURCE
 MAP 1**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: NOVEMBER 2019



NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. BRBR - WET 98 CONTINUES NORTH OUTSIDE FENCELINE AND STUDY AREA.
 3. SEE INSET MAP FOR WUS T CONTINUATION.



Legend		Streams	Wetlands	100 Yr. Floodplain
	Approximate Study Area			
	Matchlines			
	2 ft. Contours			
	Wetland Buffer			

1" = 100'

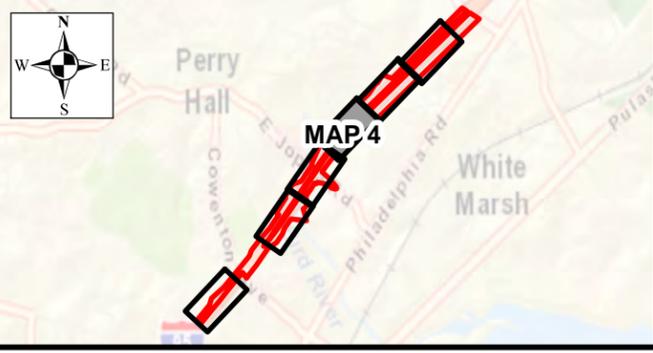
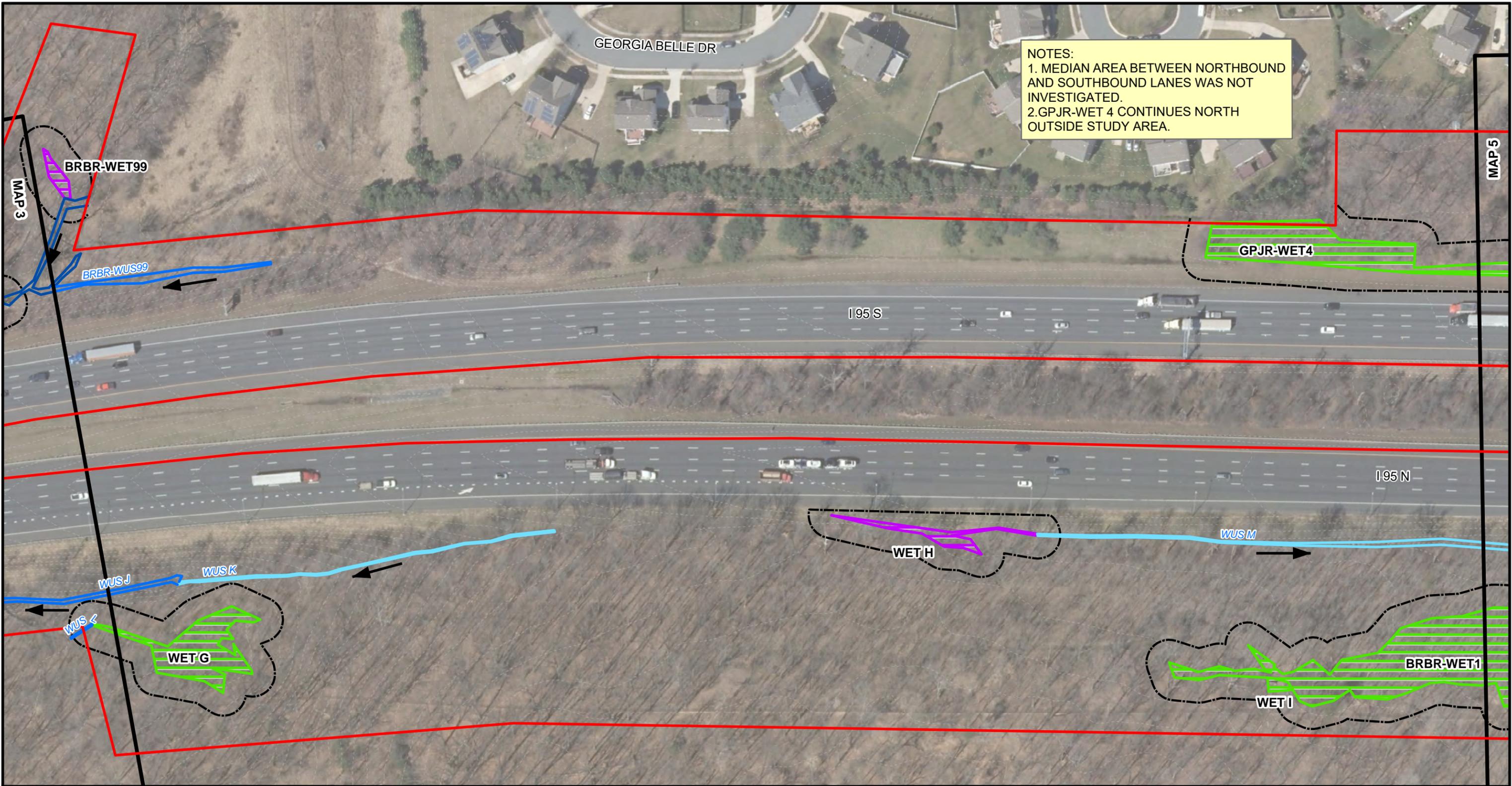
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 BALTIMORE COUNTY

**DELINEATED RESOURCE
 MAP 3**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: NOVEMBER 2019

NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. GPJR-WET 4 CONTINUES NORTH OUTSIDE STUDY AREA.



Legend		Streams	Wetlands	100 Yr. Floodplain
	Approximate Study Area			
	Matchlines			
	2 ft. Contours			
	Wetland Buffer			

1" = 100'

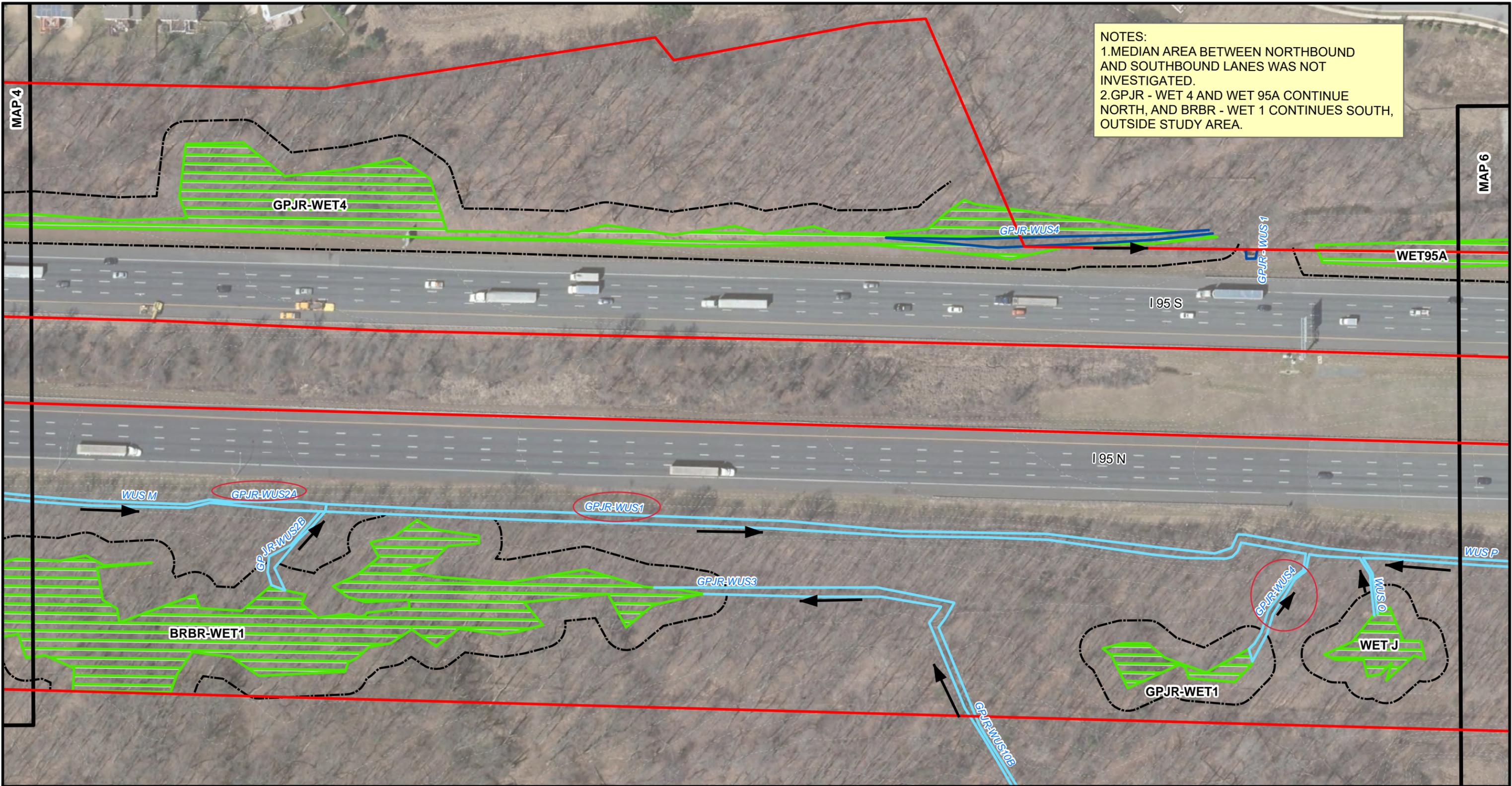
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 BALTIMORE COUNTY

**DELINEATED RESOURCE
 MAP 4**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: NOVEMBER 2019

NOTES:
 1. MEDIAN AREA BETWEEN NORTHBOUND AND SOUTHBOUND LANES WAS NOT INVESTIGATED.
 2. GPJR - WET 4 AND WET 95A CONTINUE NORTH, AND BRBR - WET 1 CONTINUES SOUTH, OUTSIDE STUDY AREA.



Legend		Streams	Wetlands	100 Yr. Floodplain
	Approximate Study Area			
	Matchlines			
	2 ft. Contours			
	Wetland Buffer			

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 SOURCE: MD IMAP, FEMA
 BALTIMORE COUNTY

**DELINEATED RESOURCE
 MAP 5**

**I-95 ETL NORTHBOUND EXTENSION
 COWENTON AVENUE TO NEW FORGE ROAD**

DATE: NOVEMBER 2019

